8-2010

SOCIAL NETWORKS IN THE TOURISM INDUSTRY: AN INVESTIGATION OF CHARLESTON, SOUTH CAROLINA

Tianyu Ying
Clemson University, yingtianyu@gmail.com

SOCIAL NETWORKS IN THE TOURISM INDUSTRY
AN INVESTIGATION OF CHARLESTON, SOUTH CAROLINA

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

---

by
Tianyu Ying
August 2010

Accepted by:
Dr. William C. Norman, Committee Chair
Dr. Kenneth F. Backman
Dr. Elizabeth D. Baldwin
Dr. James C. Witte

ABSTRACT

Over the last decade, increasing attention has been given to the networking in the tourism industry (Lynch, 2000; Pavlovich, 2003). The existing literature mainly focuses on the interrelationships among tourism stakeholders at sector level and the structure of the interorganizational networks in tourism industry. However, little research has been done to examine the possible antecedents and outcomes of the tourism networks and the interrelationships between the network structures at different subject level (i.e., interpersonal and interorganizational) and in different social contexts (i.e., online and offline). The purpose of this study is to address these research gaps by empirically examining the networks in a tourism destination.

Choosing Charleston, South Carolina as the study area, this study included three phases of data collection and analysis. A series of in-depth interviews with the Charleston Area Convention and Visitor Bureau (CACVB) staff were first conducted for the development of the survey instrument. An online self-administrated survey was then conducted with 337 investors of the CACVB Travel Council to examine the scope and strength of the relationships between tourism professionals and tourism organizations. In addition, the Web sites of 745 tourism-related organizations located in Charleston were collected for generating an inter-hyperlink network in the tourism industry. Using network analysis techniques, the relational characteristics of the identified Web sites were measured, and their possible relationships with the organizations' offline characteristics were also examined.

The results confirmed the proposed influences of personality in individual's social network structures in tourism business environment, and indicated that different personality traits contributed to different aspects of individual's social networks characteristics (i.e. social network diversity and social network tie strength). At the organizational level, the study suggested that the interorganizational networks between tourism organizations were socially embedded in their boundary-spanning personnel's social networks. In addition, market turbulence was found negatively related to tourism organization's network diversity that had significant influence on their market performance. For the interorganizational network in cyberspace, the study revealed that tourism organization's sector played an important role in their online network structures which were found correlated to tourism organization's offline network structure as well as market performance.

DEDICATION

This dissertation is dedicated to my love, Juan Deng, who has stood by me during the challenges and uncertainties, believed in me, and supported all my decisions.

ACKNOWLEDGMENTS

This study would not have been possible without the support of many people. Although it is impossible to recognize them all, there are a few special ones that I must acknowledge.

First of all, I would like to express my gratitude to my advisor, Dr. William Norman, for his support and guidance throughout the course of the dissertation. I am grateful for his eagerness to learn with me, openness to new ideas, and all the time he put in for reading and discussing my study. I am also grateful for having an exceptional doctoral committee and wish to thank Dr. Kenneth Backman for his great ideas and valuable insights for improving this study and making me realize the importance of rigor in research, Dr. Elizabeth Baldwin for helping me with the qualitative study design, and editing my work, and Dr. James Witte for his inspiration, and extending my horizon for this study. Sincere gratitude also goes to Mr. Perrin Lawson, the Deputy Director of the Charleston Area Convention and Visitor Bureau, for his continuous support and encouragement during the data collection and his valuable insights on Charleston's tourism industry from a practitioner perspective.

I would like to thank my family for their encouragement and love throughout my doctoral study, and their belief in me. Also, heartfelt thanks to all my friends, faculty members, and staff at the PRTM department for their support during my stay at Clemson University.

TABLE OF CONTENTS

Page

TITLE PAGE i

ABSTRACT ii

DEDICATION iv

ACKNOWLEDGMENTS v

LIST OF TABLES x

LIST OF FIGURES xiii

CHAPTER

I. INTRODUCTION 1

Background 1
Problem Statement 8
Study Purpose 8
Study Site and Subject Selection 9
Research Objectives 11
Research Questions 12
Overview of Research Design 13
Study Contributions 14
Delimitations and Limitations 16
Definition of Terms 17
Outline of Dissertation 20

II. LITERATURE REVIEW 21

Tourism as a Networked System 21
Destination Marketing Organizations in the Tourism System 24
Interorganizational Networks 25
Theoretical Bases of Interorganizational Network Research 25
Important Arguments in Interorganizational Network Studies 30

Table of Contents (Continued)

Page

Interorganizational networks in Small Business Research Network Studies 36
Individual factors in Interorganizational Network 38
Interorganizational Networks in Cyberspace 42
Hyperlink Network 42
Network Analysis and Webometrics for Hyperlink Research 46
Social Network Analysis 49
Theoretical Background 49
Social Network Analysis in Tourism Research 53

III. CONCEPTUAL MODEL 55

Preliminary Qualitative Study 55
Conceptual Model Construction 59
Conceptual Model Elaboration 63
Conceptual Model at Interpersonal Network Level 63
Conceptual Model at Interorganizational Network Level 72
Conceptual Model at Hyperlink Network Level 81

IV. RESEARCH DESIGN AND METHODOLOGY 85

Study Site 85
Target population 88
Sampling Frame 90
Unit of Analysis and Informant 92
Data Collection 94
Online Survey 94
Hyperlink Network Data Collection 98
Survey Measures and Scale Development 100
Personality 101
Boundary-spanning Personnel's Social Networks Structures 103
Interorganizational Network Structure 104
Perceived Performance 105
Perceived Environmental Turbulences 107

Table of Contents (Continued)

Page

Control Variables 109
Data Analysis 111

V. DESCRIPTIVE FINDINGS FROM SURVEY DATA 113

Data Screening 113
Description of the Sample 114
Testing for Non-response Bias 127
Reliability of Measurement Scales 131

VI. HYPOTHESES TESTING FOR THE SURVEY STUDY 133

Personality and Social Network Structure 133
Interorganizational Network and Performance 143
Perceived Market Turbulence and Performance 149
Mediation of Interorganizational Network Structure on Market Turbulence 155
Interpersonal Network Structure and Performance 158
Interpersonal and Interorganizational Network Structures 163
Mediation of Interorganizational Network Structures on Interpersonal Network Structures 168
Summary 172

VII. RESULTS OF INTER-HYPERLINK NETWORK ANALYSES 178

Inter-hyperlink Network Analysis 178
Structural Description on the Inter-hyperlink Network 182
Inter-hyperlink Network Hypotheses Testing 189
Summary 207

VIII. CONCLUSIONS AND IMPLICATIONS 209

Review of Research Findings 209
Theoretical Implications 219
Practical Implicationz 223
Limitations 226

Table of Contents (Continued)

Page

Future Research 228

APPENDICES 232

A: Online Survey Questionnaire 233
B: Pre-Note Email 238
C: Initial Email Invitation 239
D: Second Request Email 240
E: Final Request Email 241
F: Indegree Centrality Measure and post hoc Comparison between Sectors 242
G: Outdegree Centrality Measure and post hoc Comparison between Sectors 243
H: EgoNetwork Compositional Heterogeneity Measure and post hoc Comparison between Sectors 244
I: EgoNetwork Homophily Measure (EI Index) and post hoc Comparison between Sector 245

REFERENCE 246

LIST OF TABLES

Table		Page
2.1	Classification of Interorganizational Networks	29
4.1	Component Sector Categories of a Tourism System	89
4.2	Online Information Sources for Tourism Business/Organization Search	91
4.3	Items on the Big-Five Personality Traits	102
4.4	Items on the Perceived Organizational Performance Scale	107
4.5	Items in the Perceived Market Turbulence Scale	109
4.6	Control variables at individual and organizational levels	110
5.1	Sector Distribution of Respondents	116
5.2	Number of Respondents by Geographic Location	117
5.3	Number of Employees	118
5.4	Distribution of Organization Age	119
5.5	Years of CACVB Travel Council Investor	120
5.6	Frequency Distribution for Socio-demographics	122
5.7	Working Years in Charleston Area	123
5.8	Working Years in Current Business Field	124
5.9	Working Years in Current Organization	125
5.10	Working Years in Current Position	126
5.11	Years in CACVB Travel Council	127
5.12	Sector Profile of Respondents and Non-respondents	129

List of Tables (Continued)

Table Page

5.13 Comparison of the early and late respondents 131

5.14 Reliability Coefficients of Scales Used in this Study 132

6.1 Frequencies of Individual's Social Network Diversity Index..... 135

6.2 Mean, Standard Deviation and Correlation Matrix of Variables (n=117) 136

6.3 Results of Multiple Regression Analysis on Social Network Diversity..... 138

6.4 Mean, Standard Deviation and Correlation Matrix of Variables (n=117) 140

6.5 Results of OLS Regression Analysis on Social Network Tie Strength..... 142

6.6 Mean, Standard Deviation and Correlation Matrix of Variables (n=137) 144

6.7 Regression Models on Interorganizational Network Structure and Market Performance 146

6.8 Regression Models on Interorganizational Network Structure and Organizational Performance 148

6.9 Regression Models on Market Turbulence and Organization Performances..... 151

6.10 Regression Models on Market Turbulence and Interorganizational Network Structure 154

6.11 Regression Models on Market Turbulence and Interorganizational Network Diversity 157

6.12 Regression Models on Interpersonal Network Structure and Market Performance 160

List of Tables (Continued)

Table		Page
6.13	Regression Models on Interpersonal Network Structure and Organizational Performance	162
6.14	Interaction of Interpersonal Network Diversity and Organizational Position	165
6.15	Interaction of Interpersonal Network Tie Strength and Organizational Position	167
6.16	Regression Models on the Mediation of Interorganizational Network Structure	171
6.17	Summary of Hypotheses Testing	172
7.1	Frequencies of Web sites/URLs Searched for Each Tourism Sectors	179
7.2	Original Network Densities by Sector	185
7.3	Normalized Network Densities by Sector (D_{SN})	187
7.4	Summary of Connection Intensity by Sector	189
7.5	Top 20 Web sites with Highest Indegree Centrality	192
7.6	Top 20 Web sites with Highest Outdegree Centrality	193
7.7	Average Indegree and Outdegree Centralities by Sector	195
7.8	Average Heterogeneity Index by Sector	199
7.9	Average Network Homophily E-I Index by Sector	202
7.10	Correlations between online and offline ION diversities	205
7.11	Correlations between online network structures and performances	207
7.12	Summary of Hypotheses Testing	207

LIST OF FIGURES

Figure		Page
2.1	Conceptual model of external relationship influences, management processes, and effects in small business	37
3.1	Functional Transformation of CACVB	57
3.2	McGrath's (1964) organizational systems framework	60
3.3	Overall Conceptual Model	61
3.4	Conceptual Model at Interpersonal Network Level	64
3.5	Conceptual Model at Interorganizational Network Level	72
3.6	Conceptual Model at Hyperlink Network Level	81
4.1	Map of Charleston, South Carolina	86
7.1	Illustrative Example of Inter-hyperlink among the Web Sites	180
7.2	Interlink Network among Web sites of Tourism Organizations in Charleston	181
7.3	Illustrative example of inter-link matrix by sector	183

For tourism, a hidden hand guides an important interrelationship among the many parts of a tourism system that helps spell their success. When all these relationships are complementary, the system functions smoothly; when they are not, it breaks down.

- Clare Gunn and Turgut Var (2002: 33-34)

CHAPTER ONE

INTRODUCTION

Background

Observing tourism throughout their career, Clare Gunn and Turgut Var (2002) address the system issue in tourism development. Tourism, as a fragmented and geographically unique sector, embraces a pervasive set of business and personal relationships between firms and organizations such as national and regional destination marketing organizations (DMOs), tourism offices, hotels, attractions, transport, tours, travel agents and restaurants (Scott, Baggio, & Cooper, 2008). As the majority of tourism businesses are comprised of independent and small-sized enterprises with limited natural, human and financial resources, networking may be more important for the survival of tourism businesses than that for businesses in other economic sectors. Firms participate in network relationships with others in order to have access to the resources (e.g., goods, services, information, advice or support) that are unavailable within. In general, the network relationship between firms and organizations can be formal or informal. For a small-sized enterprise, a network is more likely to be constructed around social networks

developed through associations formed by family, friends and acquaintances (Perry, 1999), and this is also the situation in the tourism industry.

In recent years, increasing attention has been given to the importance of networking in the tourism and hospitality industry (Augustyn & Knowles 2000; Copp & Ivy 2001; Lynch 2000; Medina-Munoz & Garcia-Falcon 2000; Morrison 1998; Pavlovich 2003; Telfer 2001; Tinsley & Lynch 2001). A variety of networking forms, both formal and informal, have been observed and studied for the tourism industry. For example, network analysis has been employed in research on tourism business collaboration (Telfer 2001; Tinsley & Lynch 2001), destination marketing strategy (Morrison 1998), and tourism policy development (Pforr , 2002, Timur, 2005), etc. Among all the network relationships, tourism business collaboration seems to have received most attention in the literature.

Collaboration refers to "a process of joint decision-making among key stakeholders of a problem domain about the future of that domain" (Gary, 1989: 227). It involves "exchanging information, altering activities, sharing resources, and enhancing the capacity of another for mutual benefit and to achieve a common purpose" (Huxham, 1996: 28). Collaboration among various tourism-related entities is critical to the success of both individual tourism business and the destination as a whole. This is due to two reasons. First, tourism is resource-based, and many of the main tourism resources (e.g. beach, parks, museums, cultural or historical attractions) in destinations are usually found in the public sector, rather than owned by private tourism businesses (Scott, et al., 2008). Second, a comprehensive tourism experience for customers involves a wide variety of

tourism product/service consumptions which can hardly be offered by a single tourism business, and it needs a mechanism within the tourism sector to pass the customers from one organization to another (Curran, Jarvis, Blackburn, & Black, 1993).

In the literature, collaboration among tourism firms and between tourism businesses and other organizations has been linked to the development strategy of tourism destinations (Augustyn & Knowles 2000; Medina-Munoz & Garcia-Falcon 2000; Page etal. 1999; Telfer, 2001; Tinsley & Lynch 2001). Collaboration is believed to benefit all the tourist product providers through joint marketing initiatives (Hwang et al. 2002; Leslie and McAleenan 1990; Morrison 1998), sharing knowledge (Telfer 2001), developing new products, as well as promoting the destination and contributing to destination development (Tinsley and Lynch 2001). In many cases, collaboration is a very complicated process and the interrelations among the various actors are featured as a combination of competition and cooperation. A thorough understanding of these interrelations is the premise of a successful strategy of collaboration within a destination.

In recent years, social network analysis (SNA) has gained increased popularity in studying collaboration and other types of relations. Social network analysis is the study of relationships within a certain social group. The main objective of SNA is to accurately measure and represent the structure of relations among entities of interest, and to explain both why these relations occur and what their consequences are. Instead of assuming that environments, attributes, or circumstances affect actors independently, SNA attributes the causation to the social structure (Marin & Wellman, 2009). SNA is an approach and set of techniques used to study the exchange of resources within a social network by

collecting relationship data and organizing it into a matrix and calculating various parameters to describe the network's structural features. Marin and Wellman (2009) argue that SNA is best understood as a perspective within the social sciences and not as a method or narrowly-defined theory. SNA has been receiving increasing attention from researchers in many areas including sociology, political sciences, epidemiology, marketing, and organizational studies. This is occurring due to its advantages in: (1) making the largely invisible informal relations visible to diagnose organizational problems, and (2) utilizing existing networks to implement changes (Borgatti & Molina, 2001). For example, the IBM institute for Knowledge-Based Organizations uses SNA to improve knowledge creation and sharing (Cross, Parker & Borgatti, 2000). Mainstream media outlets such as the *Washington Post* and the *Dallas Morning News* ran articles describing the potential of network science in fighting against terrorism. From a social network perspective, the Federal Trade Commission has also begun an inquiry into whether the close ties between the boards of the two most prominent technological companies, Apple and Google, amount to a violation of antitrust laws (Helft & Stone, 2009).

The concept of tourism destination as a system based on interactions between different parts within that system is found widespread in the tourism literature (Blank, 1989; Gunn & Var, 2006; Mill & Morrison, 2002). As a result, SNA has also been introduced into tourism research on destination in recent years. It is the network of relationships that allows the tourism industry to deliver its products and to overcome the problems of fragmentation, and the network perspective provides an alternative way to

look at the destination system by examining the relationships among the involved tourism operators (Scott, et al., 2008). Although network analysis has been applied to a variety of research topics, such as destination evolution (Pavlovish, 2003), knowledge sharing and innovation (Scott, et al., 2008), policy-making (Tyler & Dinnan, 2001; Pfoor, 2002), collaborative destination marketing (Sheehan, Ritchie, & Hudson, 2007), and destination website development (Bhat & Milne, 2008), the majority of these tourism network studies are qualitative.

A small, but substantially growing body of quantitative network analysis on the tourism destination system has begun to appear in recent years. Cobb (1988) introduced SNA for her study on the communication patterns of tourist organizations. Pforr (2002) employs the sociometric approach of network analysis to explain the nature of interactions among the key stakeholders of a destination policy network. Timur (2005) studies the stakeholder relationship in sustainable urban tourism from a network perspective. Baggio (2008) tries to develop a social network model for a complex destination system. However, most of the current destination network studies mainly focus on illustrating the network structure and identifying the key stakeholders, while a number of critical issues in tourism business networks still remain unclear and call for further exploration. There is a call for more quantitative network analysis in tourism studies for its ability to give insights in the complexity of tourism system (Baggio, 2008; Scott, et al., 2008)

First, little research has been done so far to understand what environmental and organizational antecedents would affect the formation and change of network

relationships between tourism organizations, and how the interorganizational network relationship affect organizational outcomes, such as performance. Relevant calls-for-research have been noticed in literature. For example, Timur (2005) calls for future studies on whether existence of individual organizational attempts would lead to better collective action for the network goal. Scott, et al., (2008) also suggest that an investigation of how the links, strength and nature of inter-organizational ties affect individual tourism firm's behavior and performance would further enhance the application of network theory by tourism management (Scott, et al., 2008).

Second, as any interorganizational relationship needs to be carried out by persons, the role of the boundary-spanning personnel (i.e. the key contact person(s) who assumes the outside networking responsibilities) should not be neglected when examining the network relationships between tourism organizations. Previous research has examined relationships between interorganizational and interpersonal networks based on the concept of social embeddedness, which refers to the degree to which commercial transactions take place through social relations. It is believed that the inter-personal relationships, particularly that of the organizational boundary-spanning persons, had a profound impact on the nature and structure of interorganizaitonal relationship. The question then becomes what individual factors influence the formation and structure of individual's interpersonal social networks in business environment. So far, the majority of organizational network literature has focused on two predictors of the formation of network relationships: proximity (i.e., geographical or spatial distance) and similarity (e.g., sex, race, values, and education), while the effect of psychological factors (e.g.,

personality) on an individual's networking behavior and network structure has been relatively overlooked. Initial studies have shown the potential of personality as an important predictor of the formation of individual's social relationships and the change of their social network structures (e.g., Casciaro, 1998; Kilduff,1992; Vodosek, 2003)

Third, in the 21st century, the Web is of tremendous importance to business development, particularly e-commerce (Vaugh, Gao, & Kipp, 2006). Most organizations run their own websites, regardless of whether their activities, services, or products are concerned with the internet (U.S. Department of Commerce, 2000), and this is also the situation in tourism industry. It is believed that the internet is altering organizational structures and relations, from a mechanism of hierarchy or power to a variety of network forms (Achrol & Kotler, 1999). Studies show that hyperlink networks among Web sites and social relations in the offline world may be seen as co-constructing each other to some extent. As a result, the offline relationships between organizations can influence how their online relationships are developed and established (Birnie & Horvath, 2002; Hampton & Wellman, 2000). At the same time, hyperlink networks may in some circumstances also reflect the off-line connections among social actors (Park & Thelwall, 2003). While the computer and the internet became increasingly important tools for social interaction and information exchange among people and organizations, little research has been done to investigate the relational structures among the organizations in cyberspace (Park, 2002), not to mention an hyperlink network investigation in the context of tourism industry. A thorough understanding of how the tourism organizations link each other on the Web and how their hyperlink patterns are related to other offline

organizational characteristics may help the tourism industry develop their online networking strategies in a more effective way.

Problem Statement

Although interorganizational networks in tourism destination have been examined as evidenced by the tourism literature, most of their emphases were placed either on examining interrelationship among different tourism stakeholders at a sector level (e.g. accommodation, transportation, restaurants, etc), or on illustrating the structure of interoganizational networks among a group of tourism businesses. Little research has been conducted to examine the possible antecedent factors that may influence the structures of these network relationships, and the possible outcomes that may result from these networks. The interrelationships between the network structures at different subject levels (i.e. interpersonal vs interorganizational networks) and in different social contexts (i.e., online vs offline) also have not been examined within the tourism field and are missing from the tourism literature.

Study Purpose

The main purpose of this study was to examine the dynamic relationships between the social networks at different subject levels and in different social contexts, and to examine the possible causes and outcomes of these social networks in tourism industry. More specifically, the research goals of this study aim to understand:

1. How the individual antecedents influence the social network structure of the boundary-spanning personnel of tourism organizations;

2. How the boundary-spanning personnel' social networks are related to the interorganizational network of tourism organizations;
3. How the interorganizational networks of tourism organizations are related to the hyperlink networks of their Web sites on the Internet;
4. How tourism organizations' interorganizational networks affect their performance outcomes;

Study Site and Subject Selection

Charleston, South Carolina was selected as the study site of this project based on its long history in tourism development and its international reputation as a tourist destination.

Located south of the mid-point of South Carolina's coastline, Charleston is known for its significant role in South Carolina and American history since 1670 when the English established the first permanent European settlement on the Ashley River. As one of the most well-preserved historical cities in the United States, Charleston is among the top travel destinations in the United States, with an annual visitation of roughly four million visitors. Charleston has been recognized as the United States' Top 10 travel destination by Condé Nast Traveler magazine for sixteen consecutive years. In 2008, the TripAdvisor.com also awarded Charleston a Travelers' Choice Award, for its place among the top 25 United States Destinations.

The research subjects of this study were the tourism-related businesses and organizations in Charleston area as well as their boundary-spanning personnel. The

sampling process was comprised of two separate frameworks that respectively corresponded to different research objectives and research questions.

For the studies on both the interpersonal and interorganizaitonal networks in Charleston's tourism industry, the Travel Council investors of the Charleston Area Convention and Visitors Bureau (CACVB) were chosen as the research subjects. The Travel Council of the Charleston Area Convention and Visitors Bureau is the private sector marketing fund for the Charleston CVB's promotional programs and is composed of businesses and organizations that directly or indirectly benefit from the local tourism industry. The mission of Travel Council is to raise promotional dollars to match public sector funding, insuring that the local hospitality industry continues to thrive. Beside its goal in collaborative destination marketing, the CACVB Travel Council also aims at providing services and opportunities (e.g. monthly travel council meeting) for its travel council investors to foster their own social networks and promote possible tourism collaboration and cooperation among them. At the time of this study, the CACVB Travel Council has 337 active investors (based on the current travel council investor directory available in the Charleston CVB's website) covering a wide range of tourism-related sectors. The functioning role of travel council investors were assumed by the representatives from the constituent businesses or organizations, who were also the survey and analysis subjects of this study.

As to the study on the hyperlink networks among the tourism organizations in Charleston, a total of 770 tourism-related organizations and businesses were identified and sampled by searching on the local online information portals (e.g., South Carolina

Information Highway (www.sciway.net); City of Charleston (www.charlestoncity.info), etc.) and Web sites of local business/industry organizations (e.g., the Charleston Area Convention and Visitor Bureau, the Charleston Metro Chamber of Commerce, etc.). Including all the CACVB Travel Council investors, these 770 tourism organizations covered all the major sectors in tourism industry and the URLs of their Web sites were collected for conducting a series of hyperlink searches using Webometrics approaches. The results of the hyperlink searches were used to construct the online interorganizational networks among these tourism organizations for further network analysis.

Research Objectives

Four specific objectives existed for this study. They were:

1. To examine the influences of personality on the structure of the boundary-spanning personnel's social networks in tourism business environment.
2. To identify and examine the possible antecedents that may contribute to the interorganizational network structure in tourism industry.
3. To identify and examine the possible organizational outcomes that may result from the interorganizational network structure in tourism industry.
4. To understand the interrelationships between the network structures at different subject levels (i.e. interpersonal vs interorganizational networks) and in different social contexts (i.e., online vs offline).

Research Questions

Corresponding to the research objectives, this study included research questions as follows:

1. How does boundary-spanning personnel's personality affect the structure of their social networks in tourism business environment?
2. How do tourism organization's interorganizational networks affect their performances?
3. How do environmental factors influence the tourism organization's performances?
4. How do environmental factors influence the tourism organization's interorganizational network structure in a destination?
5. How do tourism organization's interorganizational networks mediate the relationship between environmental factors and performance?
6. How does the boundary-spanning personnel's social network affect organization's performance?
7. How does boundary-spanning personnel's social network affect tourism organization's interorganizaitonal network structure in a destination?
8. How do the interorganizational network structures mediate the relationship between the boundary-spanning personnel's interpersonal network structure and organization's performance?
9. How are the organizational characteristics related to the hyperlink network structure of tourism organizations?
10. Are the interorganizational network structure offline related to the hyperlink network structure of tourism organizations?

11. Are the hyperlink network structures of tourism organizations related to their organization performance?

Overview of Research Design

This study adopted a mixed method design that included three phases of data collection and analysis. Phase one of this study was mainly designed for survey instrument development. An archive analysis was conducted using publicly available reports, documents, and records to gain some general knowledge on the tourism system in Charleston, as well as a brief background of Charleston's destination marketing organization—the Charleston Area Convention and Visitor Bureau. A series of in-depth, semi-structured interviews were conducted with a selected group of staff in CACVB. These interviews focused on the information flow, as well as the formal and informal relationships within the tourism businesses networks in Charleston. The research findings were used to develop the survey instrument for the next phase of study. The survey instrument was designed for investigating the individual, environmental and organizational factors that might influence the interpersonal and interorganizational network structures in tourism industry, as well as the organizational outcomes that might result from the interorganizational network structures.

In phase two, the survey questionnaire was sent electronically to the 337 investors of the CACVB Travel Council. The questionnaire consisted of two types of questions: 1) relational questions that focused on the scope and strength of the relationships between tourism professionals and tourism organizations; and 2) attribute questions that concerned the characteristics of the individuals and organizations per se. The attribute data were

incorporated into network analysis to examine their possible relationships with the network relationship structures at both individual and interorganizaitonal levels. The survey instrument included the measurement scales on individual personality, perceived environmental turbulence, marketing and organizational performance, as well as characteristic and socio-demographic items at both individual and organizational levels.

Phase three concerned the hyperlink networks in the tourism industry of Charleston. The Web sites of 745 local tourism-related organizations were first identified and collected for inter-hyperlink searches. An inter-hyperlink network among the Web sites was generated based on the hyperlink search results. A series of SNA were carried out on the network data to measure the relational characteristics (e.g., network centrality, density, and heterogeneity, etc) of each identified Web site, which would further be examined for their possible relationships with the organizational characteristics obtained from the survey questionnaire.

Study Contributions

This study is theoretically, methodologically and practically significant for the following reasons.

First, very limited research has been done so far to examine personality's effects on the formation of individual's social networks. This is probably due to the fact that most of the social network research is conducted from the sociological and anthropological perspectives (Wasserman & Faust 1994). This study attempted to understand the extent to which personality affects the structure of interpersonal networks, especially in business or professional context. By going beyond the traditional predictors

(i.e., proximity and similarity) of network relationship, this study may contribute to the recently emerged theoretical effort of incorporating psychological perspectives into social network research. Studies show that the personal network relationships of the boundary-spanning personnel are critical to the formation and structure of interorganizational networks among organizations. By exploring the relationships between personality and individual's social networking behavior, the results of this study may also have practical implications for the tourism industry by providing insights and suggestions on tourism organization's human resource strategieson boundary-spanning personnel.

Second, this study seeks to explore the relationships among network antecedents (i.e., the environmental, organizational, and individual factors that contribute to the formation and structure of tourism business networks in a destination), interorganizational network structure and organization performance in tourism industry. Although it has been suggested that an investigation of how the structure and strength of inter-organizational ties affect individual tourism firm's performance would further enhance the application of network theory by tourism management (Scott, et al., 2008), little research has be done in tourism area. This study attempted to contribute to the theoretical development on these relationships with empirical evidence support. Also, it is reasonable to assume the possibility that organization's networking needs may vary in different environmental and organizational conditions. This study was expected to help tourism businesses tailor their networking strategies to the changing external and internal conditions for better organization performance.

Third, although Web sites and the Internet have become increasingly important communication and networking tools for tourism organizations, little research has been done to investigate the relational structures among the organizations in cyberspace (Park, 2002). By exploring tourism organizations' online networking patterns and comparing them to their counterparts in real life, this study aimed to extend the current interorganizational network research to a new domain. Through associating the online networking behavior with tourism organizations' organizational characteristics, this study could also help the tourism industry develop more effective online networking strategies for business success.

Delimitations and Limitations

The dissertation was subject to following delimitations and limitations:

1. The dissertation was delimited to the tourism-related social networks in the area of Charleston, South Carolina;
2. The dissertation is partially limited to tourism stakeholders who join the Travel Investor Council of Charleston Area Convention and Visitors Bureau;
3. The dissertation focused on the types of relationships existing within Charleston's tourism-related social networks, but did not explore and identify the exact resource exchange among Charleston's tourism-related stakeholders;
4. The dissertation limited itself to being an empirical generalization and did not test any theory/theories.

Definition of Terms

Small and Medium Enterprises (SMEs)

Small and Medium Enterprise (SMEs) are companies whose headcount or turnover falls below certain limits. The legal definition of "small" varies by country and by industry. In European Union, small enterprises are defined as enterprises with fewer than 50 employees and less than 10 million in annual turnover, while a medium sized business is defined as having fewer than 250 employees. In the United States the Small Business Administration establishes small business size standards on an industry-by-industry basis. For tourism-related businesses and services, a small business is specified as having less than less than $7 million in annual receipts, and a medium sized business should has under 500 employees (Small Business Administration, 2009)

Boundary-spanning personnel

Boundary-spanning personnel are those who have substantial communication with areas outside their organization and who are frequently consulted on work-related matters within the organization (Tushman & Thomas, 1981). They are important mechanism for linking their organization to external information sources (Aldrich & Herker, 1977; Tushman, 1977).

Social Network Analysis (SNA)

Social network analysis is the study of social relations among a set of actors. Focusing on the relation between, rather than the attributes of the entities of interest, SNA is an approach and set of techniques used to explain both why these relations occur and what their consequences are (Knoke & Yang, 2008).

Degree centrality

Degree centrality is defined as the number of direct connections a node has. It can be understood as the immediate risk of node for catching whatever is flowing through the network (such as a virus, or some information). When the network ties have direction, a node has two types of degree centrality: indegree and outdegree centrality. Indegree is the number of ties directed to the node, while outdegree is the number of ties that the node directs to others. For positive relations such as friendship or advice, indegree is usually interpreted as a form of popularity, and outdegree as gregariousness (Freeman, 1977; 1979).

Network Heterogeneity (Network Compositional Diversity)

Heterogeneity is differentiation along a nominal dimension (Blau, 1977: 9). In a social network context, heterogeneity or compositional diversity measures the extent to which an individual has connections to different social groups that can be operationalized with various variables, for example, religious groups, ethnic groups, etc. In this study, the network

heterogeneity or compositional diversity is measured based on individual's social connections in different business sectors in a tourism system.

Network tie strength

Network tie strength refers to "…a combination of the amount of time, the emotional intensity, the intimacy (mutual confiding) and the reciprocal services which characterize the tie" (Granovetter, 1973: 1361).

Homophily

Homophily refers to the principle that a contact between similar people occurs at a higher rate than among dissimilar people (McPherson, Smith-Lovin, & Cook, 2001). It indicates that individual's personal networks are homogenous with regard to many socio-demographic, behavioral, and interapersonal characteristics.

Hyperlink

A hyperlink is a technological capability that enables, in principle, one specific Web site [or Web page] to connect seamlessly with another. The shared (bilateral or unilateral) hyperlinks among Web sites allow documents and pictures to be referred to through the Web (Park & Thelwall, 2003: 6).

Outline of Dissertation

The remainder of this dissertation includes seven chapters, followed by appendices and references. Chapter Two presents a review of the existing literatures in main parts: Tourism as a complex system, Interorganizational networks, Interorganizational networks in cyberspace, Interpersonal networks, Social network Analysis, and Hyperlink Network Analysis. In Chapter Three, the conceptual model is constructed, and research questions and corresponding hypotheses are developed. Chapter Four embraces a discussion of the methods used in this study, including background information about the study site, rationales for choosing the research subject, introductions of the methods as well as the procedure of data collection. Chapter Five presents the descriptive results of network and statistical analyses performed on the data. Chapter Six demonstrates the results of data analyses and hypothesis testing on survey data. Chapter Seven presents the data analyses and hypothesis testing on hyperlink network data. Chapter Eight is the concluding chapter of the dissertation that includes a review of the research findings and discussions on the implications, limitation and future research of the study.

CHAPTER TWO

LITERATURE REVIEW

This chapter comprises a review of the primary and related literature that built the theoretical framework of this study. The first section provides a brief introduction of the networking in tourism system. A review of the research on interroganizational networks is then provided, followed by a discussion on the interorganizational network in cyberspace. The final section reviews the SNA as well as its application in tourism field.

Tourism as a Networked System

It has been a long tradition that tourism is viewed as a system. As the matter of fact, tourism has been defined as a system where interdependence is essential (Bjork & Virtanen, 2005). It is the collaboration and cooperation between product organizations within a tourism destination that created the tourism product (Soctt, et al., 2008; Tinsley & Lynch, 2001).

Although tourism is not an industry, it is believed that tourism incorporates a variety of different sectors (Leiper, 1990; Middleton, 1988; Morrison, 2002). Tourism, as a fragmented and geographically dispersed industry, belies a pervasive set of business and personal relationships between companies and managers in business such as national tourism offices, hotels, attractions, transport, tours, travel agents and restaurants (Scott, et al., 2008). The success of tourism development calls for a collaboration and integration among these various tourism-related sectors. It is this network of relationships that allows the tourism industry to deliver its product and to overcome the problems of

fragmentation. By emphasizing the interdependency in tourism, a network approach to the development success and sustainability is necessary within a tourism system, where a relatively large number of small actors with few resources can not pursue sustainable development in isolation (Halme, 2001).

There are quite a number of conceptual models that have been developed on tourism as a system. Gunn (1994) describes the functioning tourism system, which consists of the supply side of attractions, services, promotion, information, and transportation. Leiper (1990) calls for a holistic view of tourism as a system rather than an industry. He argues that a tourism system embraces five basic elements: a human element (tourist), three geographical regions (traveler-generating region, transit rout, and tourist destination), and an industrial element (the travel and tourism industry). Acknowledging the open, dynamic and complex nature of tourism, Mill and Morrison (2002) suggest that a system approach should be used to understand the interaction of many organizations and people involved in tourism. Some of these tourism system models mainly emphasize the physical element like stakeholders, resources, attractions, and infrastructures, (e.g. Gunn's supply-demand model) and some addressed the conceptual elements, such as process, activities, and behaviors (e.g. Ritchie and Counch's (2003) Destination competitiveness and sustainability model). The reality is, however, most of the existing models were developed qualitatively, and they are somehow similar, from a structural point of view, and usually are built up at a very high and abstract level. They do help us gain a clear framework for analyzing tourism as a social phenomenon, but when come to the questions like how the tourism system formed in the interactions of

different players, to what extent does each element contribute to the tourism system, etc., these conceptual models seem to be powerless. In contrast, a network approach may have the potential to compensate for the fragmented nature of tourism and answer those aforementioned questions.

The importance of networking in the tourism industry has been gradually recognized by scholars (e.g., Augustyn & Knowles, 2000; Ateljevic et al. 1999; Chathoth & Olsen, 2003; Copp & Ivy, 2001; Leslie & McAleena, 1990; Lynch, 2000; Morrison, 1998; Morrison, et al. 2002; Page, et al 1999; Pavlovich, 2003; Telfer, 2001 ; Tinsley & Lynch, 2001 ; Hwang et al. 2002). The network approach has been employed in different aspects of the tourism industry, for example, destination marketing strategies (Leslie & McAleena, 1990; Morrison, 1998); tourism business collaboration (Augustyn & Knowles, 2000; Page et al. 1999; Telfer, 2001; Tinsley & Lynch, 2001); information and resource exchange (Ateljevic et al. 1999; Augustyn & Knowles, 2000); and tourism organizations' networking behaviors (Copp & Ivy, 2001; Lynch, 2000). Hwang et al. (2002) argue that networks in tourism and hospitality industry may not be homogenous, but instead belong to a different network due to the different purposes served by different organizations or associations. In addition, networks in tourism industry may also be influenced by other features including geographic coverage, the size of the firm and the nature of the business it serves, whether local or international, etc. Hwang et al. (2002) suggest that a specific study should be carried out for a specific sector or sub-sector.

Collaboration among tourism businesses and organizations is believed to be a major form of networks in tourism industry and critical to the development of tourism destinations (Augustyn & Knowles, 2000; Medina-Munoz & Garcia-Falcon, 2000; Page et al. 1999; Telfer, 2001; Tinsley & Lynch, 2001). Collaboration is believed to benefit the tourist businesses through joint marketing initiatives (Hwang et al. 2002; Leslie and McAleenan 1990; Morrison 1998), knowledge sharing (Telfer 2001), and the creation of new products, as well as promoting the destination and contributing to destination development (Tinsley and Lynch 2001). Investigating the strategic alliance between a trade organization, wineries, grape growers and government organizations for wine tourism in Niagara region, Telfer (2001) found that formal and informal collaborations, as well as vertical and horizontal linkages exist between all sectors.

Destination Marketing Organizations in the Tourism System

Among the various interrelationships between the stakeholders in a destination system, one of the most important is the collaboration between tourism firms and destination organizations, because the "interdependence, small size, market fragmentation, and spatial separation [of tourism businesses] are all factors which may lead to a desire for a combined action, a willingness to unite to achieve common goals, a need to form tourist organizations." (Pearce, 1992: 5). Dredge (2006) suggests that the local tourism organizations are the industry's peak body in most destinations, as they are usually supported by sets of formal and informal networks that span public and private sectors. In North American, the local tourism organizations usually take their appearances in the form of destination marketing organizations (DMOs), which are non-

profit entities aimed at attracting tourist visitation for a given area (Gretzel, Fesenmaier, Formica, & O'Leary, 2006). Often referred to as convention and visitor bureau in metropolitan areas, DMOs' responsibilities include developing a unique destination image, coordinating private and public tourism industry constituencies, providing information to visitors, and leading the overall tourism industry at a destination (Prideaux & Cooper, 2002).

If the destination is viewed as a network of interdependent tourism businesses and organizations, then the destination marketing organization is one of the major gate keepers of this network. Studies have showed that destination marketing organizations are the most central stakeholder across tourism networks (Timur, 2005). Sheehan, Ritchie, and Hudson (2007) identify a triad of powerful players at the heart of urban tourism promotion-the city, the hotels, and the destination marketing/management organizations. Researchers have also tried to understand the salience of a destination marketing organization's stakeholders from the DMO CEO's perspective (Sheehan & Ritchie, 2005). Although these studies identify destination marketing organizations as a significant stakeholder in a destination's tourism network, limited efforts have been made toward a more thorough understanding on how destination marketing organization do its job in networking with other tourism stakeholders in a destination.

Interorganizational Networks

Theoretical Bases of Interorganizational Network Research

Interorganizational network research has been gaining increasing industrial and academic interest during the past few decades. Interorganizational networks refer to

relationships formed by organizations in diverse vertical and/or horizontal settings (Gulati & Gargiulo, 1999). An inter-organizational network (IORN) may be defined as "any bounded set of connected organizations where "boundary" is a membership criterion which follows commonly understood norms and where "connection" is any actual or likely, direct or indirect, inter-organizational influence" (Paulson, 1985: 109). According to Williams (2005: 223), Interorganizational Networks (ION) can be viewed as "…groups of legally separate organizations connected with each other through exchange relationships, common or complementary goals, and/or common bonds or social relationships that are sustained over time."

Interorganizational networks have been studies in several disciplinary fields, for example, public administration, marketing, industrial economics, and sociology (Whetten, 1981). Accordingly, various theoretical perspectives have also been used in interorganizational studies. Williams (2005) have made a brief review of seven typical theoretical perspectives from which interorganizational networks have been examined.

The first perspective is based on Population Ecology, as it concerns the influence of environmental forces on the selection, retention and extinction of organizational forms over time (e.g., Aldrich, 1978; Hannan and Freeman, 1977). The second is resource dependence perspective that recognizes the environmental influence on organizational survival, but emphasizes that possibility that organization can enhance their survival chances through relations with other organizations in their environment that control the important resources (e.g., Pfeffer & Salancik, 1978). The third perspective focuses on the exchange relations between organizations as it views an interorganizational network as a

composition of relationships between actors pursuing different interests. The network actors' abilities to benefit from the exchange relations is determined by their dependence on and power over other organizations in the networks. Transactions cost economics is the fourth theoretical based interorganizational studies (Williamson, 1985). From this perspective, researchers argue that interorganizational networks, in some circumstances, can be more economically efficient than either market exchange or hierarchies. However, as each organization is concerned with maximizing its own efficiency, transaction costs can be incurred by the need for organizations to monitor and control each other's behavior (Williams, 2005). From the perspective of institutional theory, researchers argue that interorganizational relations are shaped by the social institutions that are manifested in laws, governments and professions (e.g., Meyer & Rowan, 1977; DiMaggio, 1988). The sixth perspective is built on the social control theory, which argues that many organizational behaviors are actually controlled by ties between network members that are embedded in long-standing social relationships featured with established behavioral norms and mutual trusts (e.g., Larson, 1992; Uzzi, 1997). Organizational ecology theory is another perspective that organizational researchers use to stress the potential for network actors to reduce external uncertainty and solve common problems via joint actions (e.g., Astley, 1984; Gray, 1989; Emery & Trist, 1973; Trist, 1983).

Distinctive from traditional organizational studies that focus on the individual actors per se, organizational researchers holding a network perspective emphasize on the relations among the actors, whether they are individuals, work units, or organizations (Brass, Galaskiewicz, Greve, & Tsai, 2004).

The central argument of network research is that actors are embedded in networks of interconnected social relationships that offer opportunities for and constraints on behavior (Brass, et al., 2004). Using the network perspective, organizational researchers have been able to explain variance in such traditional organization outcomes as individual satisfaction, performance, and job exit; group structure and performance; and organizational innovation and survival (Brass, et al., 2004: 796). Typical network studies in organization research field focus on such topics as strategic alliance and collaborations, flows of information (communication), affect (friendship), good and service (work flow) , and influence (advice), and overlapping group memberships such as boards of directors (Brass, et al., 2004: 795).

Critical contingencies have been hypothesized as inducing and directing interorganizational networks. Oliver (1990) summarizes six possible reasons why organizations enter and remain in interortanizational networks. They are: (1) to meet legal-political requirements (necessity); (2) to reduce uncertainty in their environments (stability); (3) to economize on transactions (efficiency); (4) to pursue common or complementary goals (reciprocity); (5) to gain credibility and respectability through association (institutional); and (6) to preserve their autonomy (asymmetry).

Although the literature on interorganizational networks is relatively extensive, several scholars suggest a limited number of classifications (Harland, Lamming, Zheng & Johnsen, 2001; Murto-Koivisto, Routamaa & Vesalainen, 1996; Johnston, Peters & Gassenheimer, 2006). Based on their previous work, Pesämaa (2007) suggests that a brief classification of interorganizaitonal networks can be constructed with two dimensions:

(1) the degree of influence and (2) involvement the firm has in the network. He summarizes a number of classifications that can be used to study interorganizational networks (see table 2.1).

Table 2.1 Classification of Interorganizational Networks

Classification	Definition	Study
Development & cooperative groups	Networks of voluntary organizations that meet to share costs and ideas for development.	Murto-Koivisto, Routamaa & Vesalainen, 1996.
Industrial networks	Interorganizational networks located in the same geographical area with related or unrelated industry belongingness (not necessarily voluntarily).	Porter, 1998
Strategic alliances	Voluntary IO ties of organizations sharing goals of risks involved in technical development, market development, resource specialization or larger scale projects.	Gulati, 1995.
Joint ventures	JV involve specific technical and non specific emotional ties that share control over a specific entity. JVs contain both strong and loose partnership organizations that share risks, liabilities and responsibilities.	Friedman Kalmanoff, 1961
Joint Unit	Organization formed by a number of independent organizations with the intention to remain in it.	Murto-Routamaa Vesalainen, 1996

Adapted from Pesämaa (2007)

Important Arguments in Interorganizational Network Studies

Along with the increasing application of social network perspective in organizational and inter-organizational researches, a number of important arguments have been addressed as the essential conceptual foundations on which social network approach is premised in this field. These concepts and arguments offer specific perspectives from which organizational or inter-organizational phenomena can be examined with a social network approach.

Social Embeddedness

Understanding the concept of embeddedness is important to the study of relationships between interorganizational and interpersonal networks. Taking a unique position in the explanation of economic behaviors and institutions, Granovetter (1985) advocated that, instead of relying on market contracts and hierarchical controls, economic action is embedded in structures of social relations. His argument emphasizes on "the role of concrete personal relations and structures (or 'network') of such relations in generating trust and discouraging malfeasance" (p. 490). According to the embeddedness argument, work-related transactions tend to ovelap with patterns of social relations (Granovetter, 1985). Thus business is embedded in social networks, and patterns of transactions within and between firms may depart from what might be expected from a pure economic perspective. People may prefer to do business with contractors and others with whom they have ties of friendship or kinship rather than find exchange partners in the open market (Uzzi, 1996).

Uzzi (1999) describes the social embeddedness as "the degree to which commercial transactions take place through social relations and networks of relations that use exchange protocols associated with social, noncommercial attachments to govern businesses dealings" (p. 492). According to Marsden (1981), embeddedness refers to "the fact that exchanges and discussions within a group typically have a history, and that this history results in the routinization and stabilization of linkages among members. As elements of ongoing social structures, actors do not respond solely to individualistically determined interests…a structure of relations affects the actions taken by the individual actors composing it. It does so by constraining the set of actions available to the individual actors and by changing the dispositions of those actors toward the actions they may take" (p.1210)

Granovetter's notion of embeddedness and his emphasis on trust and interpersonal relationships have had a profound impact on recent interorganizational relation research, especially those concerning strategic alliances, information networks, and joint ventures. The common usage of this concept is based on Granovetter's insight that "embeddedness refers to the on-going contextualization of economic exchange (activity) in social structures" (Dacin et al., 1999:319). As the body of embeddedness research grows, this concept has been used beyond the market to wider social contexts that involve all kinds of communication, relations, and transactions (Emirbayer, 1997).

Strength of ties

The strength of tie is defined as "a combination of the amount of time, the emotional intensity, the intimacy (mutual confiding) and the reciprocal services which

characterize the tie" (Granovetter, 1973: 1361). Currall and Judge (1995) suggest that the strength of ties between organizational boundary role persons tends to increase with the length of their relationship.

It is believed that strong ties between close friends within a social network promote the flow of information. Jehn and Shah (1997) suggest that friendship groups share more information than acquaintance groups. It is found that members of a close network tend to modify their attitudes, sentiments, or opinions to correspond to others around them (Frank & Fahrbach, 1999). As Hansen (1999) argues, strong ties "provide the highest relative net effect …when the knowledge is highly complex" (p. 105). This view has been supported by findings from empirical studies. For example, Reagans and McEvily (2003) find that it is strong ties affect individuals to invest their time and energy in sharing knowledge with others. Based on a longitudinal study of firms in the international chemical industry, Ahuja (2000) suggests that compared with indirect ties that only serve as sources of information, direct ties serve as sources of both resources and information.

While the strong ties' effects in information flow being recognized, Graovetter (1973) noted that weak or indirect ties of acquaintanceship offer access to new information, and are better for its function as bridges to connect people to information and other resources that would be otherwise unavailable within their close social networks. This argument also has empirical supports (e.g., Burt, 2000). Perry-Smith and Shalley (2003) argue that weak ties are generally beneficial for creativity due to the fact that exposure to different approaches and perspectives should enhance important

creativity-relevant skills. Burt (2000) developed that concept of “structure holes” for the weak connections between groups in the social structure of market, which are defined as opportunities for gaining new advantage, accessing nonredundant information, and diffusion of knowledge.

Social capital

Social capital has been considered as one of the three types of capitals to the competitive arena: financial capital, human capital, and social capital (Burt, 1992). According to Lin (2001, a), social capital "consists of resources embedded in social relations and social structure, which can be mobilized when an actor wished to increase the likelihood of success in a purposive action" (Lin, 2001a). In another work, Lin (2001, b) addresses two important component with regard to this social capital definition. First, resources are embedded in social relations rather than in the individual. It is the structure of the network and actors’ positions within this network, rather than the actors themselves, that should be the focus of the network examination. Second, access and use of these resources are dependent on an actor being aware of their presence. The resources existing in the network mean nothing to the actor unless he/she has the ability to see it. According to Adler and Kwon (2000), there are 3 benefits of social capital:

- Social capital provides actors in the network with access to broader sources of information at lower costs.
- Social capital provides actors in the network with extended power and influence.

- Social capital facilitates solidarity between actors, as strong networks encourage compliance with rules and customs without the need for formal controls.

It is also important to note that, social capital inheres in the relationships between people. Actors do not control their social capital in the same way they control their money or their human capital. To use social capital, it is necessary to draw upon the cooperation of another actor by, for example, asking for advice or help at work.

Structure holes

Ronald Burt's (1992) argument of 'structural holes' is an important extension of social network theory, it also offers a different angle to examine the social network. This theory aims to explain "how competition works when players have established relations with others" (Burt, 1992), and argues that networks provide two types of benefits: information benefits and control benefits. Information benefits refer to who knows about relevant information and how fast they find out about it. "Players with a network optimally structured to provide these benefits enjoy higher rates of return to their investments, because such players know about, and have a hand in, more rewarding opportunities" Burt (1992); Control benefits refer to the advantages of being an important player in a well-connected network. In a large network, central players have more bargaining power than other players, which also means that they can, to a large extent, control many of the information flows within the network. Burt's theory of structural holes aims to enhance these benefits to their full potential. A structural hole is "a separation between non-redundant contacts" (Burt, 1992). The holes between non-

redundant contacts provide opportunities that can enhance both the control benefits and the information benefits of networks.

Centrality

Centrality of an actor refers to the extent to which an actor occupies a central position in the network in one of the following ways: having many ties to other actors (degree centrality), being able to reach many other actors (closeness centrality), connecting other actors who have no direct connections (betweenness centrality), or having connections to central located actors (eigenvector centrality).

Centrality in social network is implicit in any discussion of social capital or structural holes. There are different ways in which actors can be central. More recent work has emphasized that actors who bridge across structural holes tend to have high betweenness centrality in the social network. And also, an actor can be popular in the sense of receiving lots of friendship, and thereby have high indegree centrality. An actor may be able to reach lots of people in the network either directly or indirectly, and thereby have high closeness centrality.

Cooperation and Trust within Interorganizational Network

Cooperation between organizations is considered to be the source of competitive advantage. As interorganizational cooperation (such as alliances) becomes a major strategy, the question about how they are developed arises. It is suggested that firms may enjoy a high level of mutual trust in their cooperation when they have successful and evolutionary relationships (Child and Faulkner, 1998). Trust is considered to be an important relational condition for the continuity and development of cooperation between

organizations, as it socially decreases transaction costs through the control of opportunism, encourages buyers and suppliers to invest in relation-specific assets and facilitates learning between them (Child.& Faulkner, 1998; Lane, 1998; Uzzi, 1996). Child and Faulkner (1998: 46) stress that the evolution of interorganizational alliances fundamentally necessitates high levels of mutual trust. The factors that contribute to the development of interorganizational trust have become significant issues -in studies of cooperative strategy and interorganizational networks. Many researchers argue that social networks of managers across organizations can facilitate the development of trust among organizations (Rowley et al., 2000; Uzzi, 1996).

Interorganizational networks in Small Business Research

Small businesses are often advised to develop relationships with external organizations that have the potential to assist business development, survival, and growth (Street & Cameron, 2007). BarNir and Smith (2002) call for a better understanding of the factors of successful small business networks. A recent management research commissioned by a major North American bank found that the accessibility to formal and informal business networks and markets is a significant source for sustainable small business success (Anon, 2003, cited from Street & Cameron, 2007).

The Web of external relationship surrounding the small businesses, whether referred to as a “strategic alliance” or a “network”, is capable of providing a wide variety of tangible and intangible benefits. A focus on the external relationships of the small business underlines the vital importance of external resources in moving a small business toward increased success and profitability. Street and Cameron (2007) have conducted an

extensive review of interorganizational networks studies in small business literature. Based on McGrath's (1964) organizational system framework, they managed to summarize the previous network studies in small business as explorations of relationships between three categories of variables: 1) network antecedent, including individual, organizational, relationship, and environmental characteristics; 2) Network process that include measures on strategy development and planning, and measures on relationship management; and 3) Network outcome which embraces measures on organizational development, competition and competition and competitive advantage, as well as performance/success.

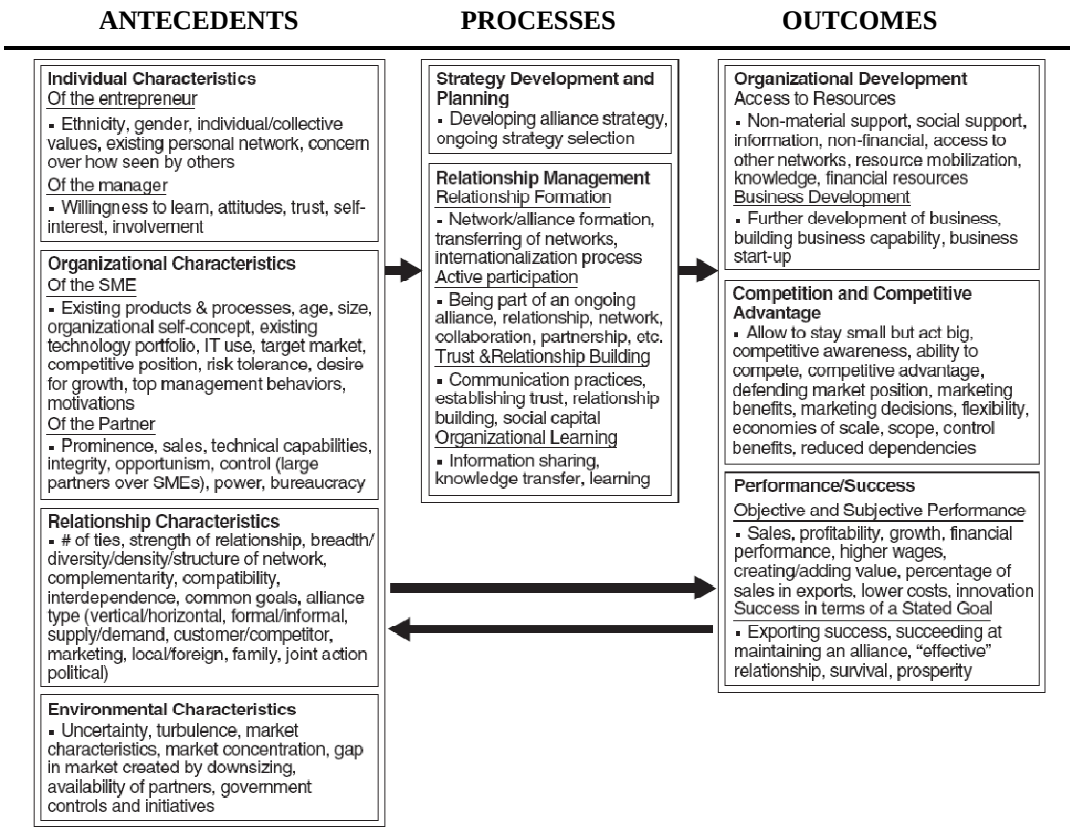

Figure 2.1 Conceptual model of external relationship influences, management processes, and effects in small business (adapted from Street and Cameron, 2007: 243)

Individual factors in Interorganizational Network

Structure is not the only factor that affects interorganizational networks, as "[n]o social structure exists independently from the perceptions, behavior, interpretations and interactions of the actors involved" (Williams, 2005: 229). Research has found that individuals within the organizations also have influence on the interorganizational relations through their motivation, experience, personality, as well as other personal attributes. Larson (1992) suggests that individual-level factors should not be ignored in seeking explanations for alliance use. Adobar (1998) and Selsky (1998) discuss the influence of internal structural and culture on interorganizational collaboration and partnership. Dickson and Weaver's (1997) work indicates a significant interaction between key manager's orientations, environmental perceptions, and alliance use. Gulati and Westphal (1998) have examined how the relationship between the board and the chief executive officer affect the interfirm alliance, and they argue that two board interlocks may influence the formation and maintenance of interorganizational networks. All these studies emphasize the importance of interpersonal relationships between boundary-spanning individuals of two organizations to the relationships between the two organizations (Selsky, 1998; Zaheer, Loftstrom, & Varghese , 1998).

Personality and Social Networks

Among all the individual-level factors that have been examined for interorganizational relation research, personality seems to be the one that has received a lot of attentions. Although many radical structuralists believe that personality is a result

of network position, research indicates that personality can affect social network patterns (Brass, Galaskiewicz, Greve, & Tsai, 2004: 796).

Studies found that personality can affect an individual's socializing behaviors. Casciaro (1998) shows that personality is related to the accuracy of individuals' perception of networks. Klein, Lim, Saltz, and Mayer (2004) report that a number of personality characteristics are related to individual's centrality in advice, friendship, and adversarial networks within teams. Burt, Jannotta, and Mahoney (1998) found that an entrepreneurial personality characteristic was correlated with the building of entrepreneurial networks among junior level employees. Mehra, Kilduff, and Brass's (2001) study suggests that people occupying the central positions in the networks tend to have a higher level of self-monitoring, which is a personality trait indicating individual's ability to monitor environmental cues and modify their behavior based on external expectations. Kilduff (1992) reports the moderating effects of two personality traits, self-monitoring (Snyder, 1974) and social uniqueness (Snyder & Fromkin, 1980), on the correlation between friendship relationships and the bidding behavior for job interviews among a group of MBA students. Instead of focusing on a set of specified personality traits, Vodosek (2003) extend his exploration by examining how a basic and comprehensive model of personality-the big five personality markers-may related to the formation of networks at different levels. Based on developmental network studies, Dougherty, Cheung, and Florea (2008) believe that, among all the personality characteristics that might possible influence individual's forming of development social networks, those affecting perceptions of and reactions to individual's social environment

are playing a particularly critical role, which might include self-construal, core self-evaluations, openness to experience, conscientiousness, and extroversion/introversion.

As Kilduff and Tsai (2003: 84) suggest, "[t]he personality approach may motivate research that helps explain not only why individuals development distinctive patterns of network ties, but also how these patterns differentially affect outcomes such as work performance, promotions and business success."

Big-Five Personality Model

In the past two decades, the five-factor model of personality has gained wide acceptance as a general taxonomy of personality traits. The Big-Five framework suggests that most individual differences in personality can be classified into five broad, empirically derived domains. It is a hierarchical model of personality traits with five broad bipolar factors that represent personality at the broadest level of abstraction (Gosling, Rentfrow, & Swann, 2003). Each bipolar factor (e.g., Extraversion vs. Introversion) summarizes several more specific facets (e.g., Sociability), which, in turn, subsume a large number of even more specific traits (e.g., talkative, outgoing). The five general factors include Extraversion, Agreeableness, conscientiousness, Neuroticism, and Openness. Benet and John (1998) describe these five factor as follows:

> Extraversion summarizes traits related to activity and energy, dominance, sociability, expressiveness, and positive emotions. Agreeableness contrasts a procosial orientation toward others with antagonism and includes traits such as altruism, tendermindedness, trust, and modesty. Conscientiousness describes socially prescribed impulse control that facilitates task- abd goal-directed

> behavior. Neuroticism contrasts emotional stability with a broad range of negative affects, including anxiety, sadness, irritability, and nervous tension. Openness describes the breadth, depth, and complexity of an individual's mental and experiential life (p. 730).

The big-five dimensions have shown theoretically meaningful associations with important life outcomes, such as work and school performance (Barrick & Mount, 1991), well-being (Costa & McCrae, 1980), delinquency (John, et al., 1994), and aspects of psychopathology (Widiger & Trull, 1992). It is suggested that the big five model of personality can be used to describe the most salient aspects of personality, which are, to a large extent, heritable (Jang, McCrae, Angleitner, Rieman, & Liversley, 1998), unaffected by external influences (Asendorpf & Wilpers, 1998), and stable throughout a person's lifetime (McCrae & Costa, 1990). Goldberg (1981: 159) examined the "robustness" of the five-factor model based on his work on lexical analysis, and suggests that "it should be possible to argue the case that any model for structuring individual difference will have to encompass-at some level-something like these 'big five' dimensions".

Several rating instruments have been developed to measure the Big-Five dimensions. While the most comprehensive instruments (i.e. NEO Personality Inventory, Revised (NEO-PI-R) contains 240 items and takes 45 minutes to complete (Costa & McCrae, 1992), the three well-established and widely used instruments are the 44-item Big-Five Inventory (BFI) (Benet-Martínez & John, 1998; John & Srivastava, 1999), the

60-item NEO Five-Factor Inventory (NEO-FFI) (Costa & McCrae, 1992), and Goldberg's instrument comprised of 100 trait descriptive adjectives (TDA) (Goldberg, 1992).

It is important to note that the Big-five structure does not imply that personality difference can be reduced to only five traits. Rather, the big five dimensions represent personality at the broadest level of abstraction, and each dimension includes a large number of distinct, more specific personality characteristics (Costa & McCrae, 1995; John, 1990). The Big-Five's limitation has also been recognized by the researchers (e.g., Benet & Waller, 1995; Block, 1995; McAdams, 1992). As McCrae and John (1992) summarized:

> There are disputes among five-factorists abou the best interpretation of the factors; there are certainly important distinctions to be made at the level of the more molecular traits that define the factors; and it is possible that there are other basic dimensions of personality (p. 177).

Interorganizational Networks in Cyberspace

Hyperlink Network

The majority of existing interorganizational network studies mainly focus on how the interorganizational communication linkages operate, by studying the patterns of relationships within and between organizations in the context of complementing human networks (Contractor & Eisenberg, 1990; Kettinger & Grover, 1997). Academic efforts have also been made to examine how organizations make use of technology or reduce

transaction costs (Hart & Estrin, 1991; Malone, Yates, & Benjamin 1987; Steinfield, Kraut, & Plumer, 1995). While the computer and the internet became increasingly important tools for social interaction and information exchange among people and organizations, little research has been done to investigate the relational structures among the organizations in the cyberspace (Park, 2002).

The web is of tremendous importance to business development, particularly e-commerce (Vaugh, Gao, & Kipp, 2006). It is believed that websites best represent the modern organization (Park, 2002), as most organizations run their own websites, regardless of whether their activities, services, or products are concerned with the internet (U.S. Department of Commerce, 2000). These websites are connected with hyperlinks that are created to direct the Web visitors from one Web page to another, or from one Web site to another. As the basic structural element of internet,

A hyperlink can be defined as "…a technological capability that enables, inprinciple, one specific Web site to connect seamlessly with another. The shared (bilateral or unilateral) hyperlinks among Web sites allow documents and pictures to be referred to through the Web" (Park & Thelwall, 2003). A hyperlink from website A to site B is a recommendation of site B by the author of site A (Henzinger, 2001). Hyperlinks represent a wide range of communication behaviors, as some may concern the social ties, while others may be related to the flow of Web information. They allow individuals or organizations that run websites on the internet to expand their social or communication relations, resources, and knowledge by making possible easy and direct contact among people or groups anywhere in the world (Wellman, 2001). Hyperlinks are

considered not simply as a technological tool but as a newly emerging social and communicational channel. It is assumed that hyperlinks may be the formalized bridge between the authors of the hyperlinking and hyperlinked Web sites, serving as social symbols or signs of communication hyperlinkage among themselves (Park & Thelwall, 2003). Through a hyperlink, an individual website plays the role of an actor who could influence other websites' trust, prestige, authority, or credibility (Kleinberg, 1999). As argued by Jackson (1997), hyperlink structure designed or modified by the owners of the web sites reflects their communicative choices or agendas. Thus, the structural patterns of the hyperlinks on their websites serve as a particular social or communicative function and also can be used as a lens through which the interactions among the individuals or organizations can be more thoroughly understood.

Earlier studies have shown that web hyperlinks contain useful business information (Reid, 2003; Tan, Foo, and Hui, 2002). Based on a content analysis on the hyperlinks to the websites of North American IT companies, Vaughan, Gao and Kipp (2006) find that most links were created for business purposes. They also notice that links to competitors are extremely rare but competitors are often co-linked, which suggests that co-link analysis can be used as an effective approach for pursuing information on competitive intelligence. Researchers have also found that the number of hyperlinks to a company's website correlates with the company's business performance (Vaughan, 2004; Vaughan & Wu, 2004). Hyperlink network analysts argue that despite the internet's brief existence, its increasing role in communication has been made possible by the continual change in the structure of the hyperlink (Park, 2000: 12).

Recently, a number of researchers have begun to introduce the network concept to their hyperlink studies where the Web sites are treated as the nodes of a network that are linked by their hyperlinks (e.g., Adamic & Adar, 2001; Brunn & Dodge, 2001; Halavais, 2000; Henzinger, 2001; Kleinberg, 1999; Kreb, 2000; Park, Barnett & Kim, 2000). According to Park et al. (2002), Web sites are creating a hyperlink-network that connects their partners, in order to enhance their efficiencies in terms of quality contents, technological sophistication, brand reputation, and customer management. While any individual or institution has complete freedom in choosing the direction of hyperlinks on their Web sites or Web pages, Albert, Jeong, and Barabasi's (1999) research shows that the web has the flocking nature. According to them, you can get from one document to another by clicking on hyperlinks on average 19 times, if you select two Web pages at random. It is believed that the social (or communication) structure among those social actors can be interpreted based on the hyperlink structure, as hyperlinks as connections represent networks among people, organization, or nation-states.

The internet is altering organizational structures and relations, from a mechanism of hierarchy or power to a variety of network forms (Achrol & Kotler, 1999). Studies show that hyperlink networks among Web sites and social relations in the offline world may be seen as co-constructing each other to some extent, so that offline relationships can influence how online relationships are developed and established (Birnie & Horvath, 2002; Hampton & Wellman, 2000). Meanwhile, literature also suggests that hyperlink networks may in some circumstances reflect off-line connections among social actors, and be unique to online interactions in other cases (Park & Thelwall, 2003).

Network Analysis and Webometrics for Hyperlink Research

Hyperlink analysis has the advantage of being unobtrusive (Garton , Haythornthwaite & Wellman, 1997). As hyperlink data can be collected without intruding in the research context and therefore may avoid sensitive issues resulting from obtrusive observation on the Internet, like monitoring, physical fatigue, as well as privacy (Park, 2002).

Network analysis is a major approach for hyperlink analysis. In the past decade, network analysis has been introduced to the hyperlink analysis by describing websites as network actors and the hyperlinks among them as the network ties (e.g., Adamic & Adar, 2003; Brunn & Dodge, 2001). Using a set of analytical techniques derived from SNA, the hyperlink network analysis distinct itself from conventional SNA with its use of hyperlink data that can only be obtained from the internet. Garton, Haythornthwaite and Wellman (1997) and Jackson (1997) suggest that social network analysis methods could be a strong approach for studying the representation and interpretation of the Web's communication structure, and it could be applicable to understand the interplay between computer-mediated communication (CMC) processes.

Hyperlink analysis is able to apply SNA techniques to collections of Web sites and draw conclusion based on an assumption of actor relationships (Park & Thelwall, 2003). In hyperlink network analysis, the nodes of the network are Web sites which represent social actors like people or organizations, while the ties of the network are comprised of hyperlinks, and the number of hyperlinks between two Web sites indicates the strength of the relationships between them.

Based on the underlying belief that the structural patterns of hyperlink connectivity can serve a particular social or communicative function, Park and Thelwall (2003) summarize a number of topics that have been frequently involved in hyperlink network analysis, which include e-commerce, social movements, interpersonal, interorganizational and international communication, etc. Using hyperlink network analysis, Bae and Choi (2000) examine the structure of hyperlink-mediated communication between the Web sites of 402 human right NGOs, and found that the formation of hyperlink network among these NGOs are mainly determined by their mission similarity, other than their geographical proximity. Based on a study of the affiliation network among 152 commercial Web sites in South Korea, Park, Barnett, and Nam (2002) found that the clustering structure of the hyperlink-affiliation network was influenced by the financial Web sites (e.g. Web sites of credit card companies) with which others are affiliated. Thelwall (2001a) found that business hyperlinks were the most common type of external hyperlink, and business relationship among organizations are distributed throughout their Web sites via the hyperlink selection (2001b). In academic settings, Thelwall (2002) notices that hyperlinks rarely directly represent social ties between individual scholars, but instead, link to the home pages of universities.

Park and Thelwall (2003) suggest that hyperlinks are a highly promising but problematic new source of data that can be minded for previously hidden patterns of information.

Social network analysis tools and techniques form an excellent resource for hyperlink analysis, but should only be used in conjunction with improved techniques for data collection, validation and interpretation.

The Majority of hyperlink analysis also involves knowledge and methods from Webometrics. Webometrics (also called Cybermetrics), according to Björneborn and Ingwersen (2001), is "the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the Web drawing on bibliometric and informetric approaches." It involves a set of scientific approaches that are used to measure the World Wide Web to get knowledge about the number and types of hyperlinks, structure of the World Wide Web and usage patterns.

Webometric approaches are often used for web data mining. Based on the type of data used, web data mining in webometrics can be classified into three major sub-areas: web content mining, web structure mining, and web usage mining (Madria et al., 1999). Web content mining applies content analysis on the searched web pages. From each web page retrieved from the hyperlink search, relevant information will be collected to examine the origin of the given web page link, the characteristics of the hyperlink creator, the motivation of creating the hyperlink, etc.

Web structure mining concerns the model underlying the web hyperlink structure. There are two major types of hyperlink data for web structure mining: Interlink data and co-link data. Interlink data contains information on the direct connections among a group of web nodes. The term co-link refers to two different concepts: co-inlink, when two web nodes are simultaneously receiving links from another web node (analogous to the

concept of co-citation), and co-outlink, when two web nodes are simultaneously providing links to another web node (Analogous to the concept of bibliometric coupling) (Björneborn & Ingwersen, 2004). First proposed in 1996 (Larson, 1996), the co-link analysis has gained interest among webometricians and the method has been applied to map cultural and linguistic influences (Gouveia & Kurtenbach, 2009; Vaughan, 2006), to investigate academic websites (Chu, et al., 2002), institutional website based on a triple-helix model (Heimeriks et al, 2003), and competitive relations among companies (Vaughan & You, 2005).

The third type of web data mining concerns the web usage, which tries to discover patterns from web usage data (Lu et al., 2003). The web usage is estimated by counting the number of hyperlinks pointing at a web site (Thelwall, 2008). This is based on the assumption that although few visitors to a web site would create a hyperlink to it, in general web sites attracting more links probably have more visitors or are regarded as more useful or important by their visitors.

Social Network Analysis

Theoretical Background

The origins of network notion in social study have be attributed by Grabher to Simmel's (1890) fundamental distinction between 'groups' (defined by some membership criterion) and 'webs of affiliation' (linked through specific types of connections). By highlighting the critical role of the position of actor in 'webs of affiliation', he laid the foundations for social network analysis (Grabner, 2006:164). Over

the last hundred years, the network idea has been repeatedly invoked in such different fields as physics, biology, linguistics, anthropology, sociology and psychotherapy, etc. Since the 1930s, the network concept has become one of the defining paradigms of the modern era (Kilduff & Tsai, 2003).

In general terms, SNA is the study of relationships within the context of social situations. The main objective of network analysis is to measure and represent the structure of relations among entities of interest (e.g. person, small groups, organizations, or even nation-states, etc) accurately, and to explain both why these relations occur and what are their consequences (Knoke & Yang, 2008). It is an approach and set of techniques used to study the exchange of resources among actors (Haytheonthwaite, 1996) by collecting relational data and organizing it into a matrix and calculating various parameters such as density or centrality.

As Durland and Fredericks (2005) address, one basic assumption that differentiates SNA from other methods is that it "focuses on the social context and behavior of relationships among actors (that is, subjects or objects under investigation) rather than on the rational choice individual actors make."(p.9). A number of principles underlying the social network perspective has been identified by Hanneman (2001), and Wasserman and Faust (1994).

- Actors and actions are interdependent rather than independent, autonomous units;
- Relational links between actors are channels for the flow of resources (either material or nonmaterial);

- Network structural environment provides opportunities for or constrains on individual action;
- Network models present structure (e.g. social, economic, and political) as lasting patterns of relations among actors.

Social network analysis is inherently an interdisciplinary endeavor (Wasserman, et al. 1994). As Freeman (1984) and Marsden and Laumann (1984) have documented, both the social sciences, mathematics and statistics have been contributing substantially to the development of the concept of SNA. Although the present-day SNA stems from a number of very diverse and intersected strands, there is a clear lineage for the mainstream of SNA can be constructed from the complex history. Scott (2000) identified three main research traditions of SNA:

> " the sociometric analysts, who worked on small groups and produced many technical advances with the methods of graph theory; the Harvard researchers of the 1930s, who explored patterns of interpersonal relations and the formation of 'cliques'; and the Manchester anthropologists, who built on both of these strands to investigate the structure of 'community relations in tribal and village societies.' These traditions were eventually brought together in the 1960s and 1970s, again at Harvard, when contemporary social network analysis was forged. (p. 7)

The application of SNA to social science research has been steadily increased over the past ten to fifteen years. Durland and Fredericks (2005) summarize three major

factors that have contributed to the increasing interest in SNA research and application. First, new understandings of relation and interaction have been gained by practical applications. For example, companies like IBM, Accenture, and Mars are using SNA for improving their structures of information flow and organizational effectiveness (Cross & Parker, 2004). The developing focus and understanding on complexity and system, especially at the corporate and business level is the second factor for the increased interest in SNA application. Thirdly, the availability of specific SNA software program for data analysis and sociograms generation facilitate the growth of SNA.

As noted by (Knoke & Yang, 2008: 4), the importance of SNA rests on three underlying assumptions about patterned relations and their effect:

- Structural relations are often more important for understanding observed behaviors than are such attributes as age, gender, values, and ideology.
- Social networks affect perceptions, beliefs and actions through a variety of structural mechanisms that are socially constructed by relations among entities.
- Structural relations are dynamic processes. Networks are continually changing through interactions among their constituent people, groups, or organizations. In applying their knowledge about networks to leverage advantages, these entities also transform the relational structures within which they are embedded, both intentionally and unintentionally.

The regular patterns of relations connecting a set of entities comprise macro-social contexts, or overall structures, that influence their perceptions, beliefs, decisions, and actions. The central objectives of network analysis are to measure and represent these

structural relations accurately, and to explain both why they occur and what their consequences are (Knoke & Yang, 2008).

Social Network Analysis in Tourism Research

The concept of network is not new in the field of tourism research. Given the inter-disciplinary nature of tourism studies, it is not surprising to see that SNA, as a research method, or even a research paradigm, its meeting with tourism always happen within the context of a specific area or research topic. Scott, Baggio and Cooper (2008) have summarized a number of tourism research areas where the network concept has been applied. These areas include social networks and tourism information flow; social networks in tourism trade; social networks in tourism policy-making and governance; social networks in tourism enterprise development, and social networks in tourism partnership, etc.

At individual behavioral level, Stokowiski (1990) suggests that SNA can be used as an alternative method to analyze leisure and recreation behavior. Park (1997) attempts to examine the association between senior Korean's community social networks and their travel behaviors. Money (2000) employed SNA to understand how the social business interaction (word-of-mouth referrals) affects the purchase behavior of the corporate travel business. The study also examine whether the pattern of referral networks was influenced by cultural and geographic location.

Tourism policy is another area where SNA has been observed. For example, Pforr (2002) used a sociometric approach of network analysis to explain the nature of interactions among various actors involved in a particular policy issue. Timur (2005)

employed a network perspective to understand the stakeholder relationships in the context of sustainable urban tourism development.

Social network analysis has also been used to understand the complexity of tourism destination as a complex system. Given a destination's environment is a grouping of organizations that are diverse and interdependent in nature, network analysis is suited to both examine the structure and functioning of tourism destination contexts, and how inter-stakeholder relationships are constructed in destination contexts. Using network analysis techniques, Cobb (1988) investigated the relationship between the exchange patterns among tourism-oriented businesses and the amount of influence attributed to them. Tyler and Dinan (2001) examine the relationships among tourism network members from a governance perspective and argue that network theory could be one of the most applicable approaches for studying tourism due to its complex nature. Using network theory, Pavlovich (2001, 2003) examine how the relational ties among the actors in a tourism destination system influenced the development of a destination in New Zealand.

CHAPTER THREE

CONCEPTUAL MODEL

Built on the theoretical base established in Chapter Two, this chapter presents the development of a conceptual model, the research questions, and the corresponding hypotheses proposed for this study. A series of semi-structured interviews were first conducted with a selected group of CACVB staff for a brief understanding of the social networks in Charleston's tourism industry. Together with the theoretical findings from literature study, the lessons learned from the interviews contributed to the construction of the conceptual model. With operationalized variables, the conceptual model was elaborated at three different subject levels, based on which, research questions and hypotheses for each sub-model were formulated.

Preliminary Qualitative Study

At the beginning of the project, a preliminary qualitative study was first conducted to gain a brief idea of the tourism networks existing in the Charleston area and to help construct the conceptual model for this study. After gaining research approval, a series of on-site semi-structured in-depth interviews with executives of the Charleston Area convention and Visitor Bureau (CACVB) and the manager of the CACVB Travel Council were conducted. The interviews were used to complement the literature review for developing the conceptual model and research questions and justifying the value of the research. The information obtained from these interviews also contributed to

identifying variables and relationships, refining measurement scales for the following quantitative study, and helping determining the appropriate sampling design.

These interviews served the purpose of examining the meanings of social networking in the tourism industry of Charleston, assessing the social networking functions of CACVB as well as its Travel Council, and determining the major issues related to the development of an effective social network among the constituent businesses in CACVB's travel council. Interviewees included the CACVB's executives, Travel Council manager, Travel Council Coordinator (chairman), and the manager of their Information Technology (IT) department. Lasting for about two hours, the interviews covered a broad range of topics that included identifying the major tourism business sectors in Charleston, the diverse social networking needs of tourism businesses, the social networking functions of the CACVB and its Travel Council, the meanings of interpersonal networking among tourism professionals, the structure of the Travel Council investor network, the social embeddedness in the business networking of tourism businesses, and the use of information technology (e.g. Internet, Social Media, etc) for tourism business networking and marketing.

One interesting finding from the interviews was that the tourism professionals in the CACVB had perceived undergoing, fundamentally structural and functional transformations in the CACVB. The increasing number of constituents (i.e., CACVB Trvael Council Investors) had created a dramatic increase in the complexity of CACVB's responsibilities. Accordingly, the CACVB was gradually changing its role in a tourism system from a traditional "destination marketing organization" that solely focused on

tourist information provision and destination promotion toward a “destination marketing and management organization”, which was involved in such destination activities as local tourism businesses networking, tourism collaboration stimulation, and tourism development (see figure 3.1). Compared with its responsibilities in marketing the destination and attracting external visitors, convention and meeting professionals, tour professionals, and event planners to visit Charleston area, the CACVB’s role as an essential broker in destination’s tourism network used to get relatively less attention in their daily operations. In recent years, however, it had become more and more critical for the CACVB to provide satisfactory services to its constituencies and to justify its significant and indispensable position in the destination network and local community as a unique broker who is able to bridge the structural holes/gaps in destination’s resources exchange, tourism businesses collaboration and destination marketing networks.

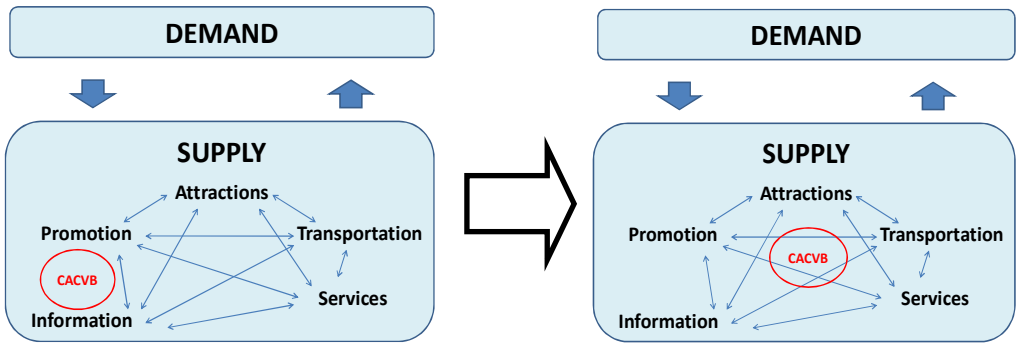

Figure 3.1 Functional Transformation of CACVB

Along with a growing number of constituents who all want to be represented, the CACVB, particularly the CACVB Travel Council, was expected to do a better job in communication among the stakeholders, to some extent "…because the local communities are now increasingly relying on DMOs with their quasi-governmental status and their close ties with the local business to close the leadership gap that emerged from changes in community structures." (Gretzel, et al., 2006: 119). One the other hand, with the CACVB's role as a destination network coordinator being recognized by an increasing body of tourism stakeholders in Charleston area, the CACVB Travel Council was believed to have a group of constituents (i.e., the CACVB Travel Council Investors) that covered all the major sectors or stakeholder areas of the local tourism system in Charleston. It provided a practical social setting for this study to examined the structure of social relationships within a group of typical tourism stakeholders in the destination of Charleston.

In order to foster the development and growth of social networks in Charleston's tourism system, the CACVB Travel Council held a monthly meeting on the second Tuesday of each month in different locations. It provided an institutional environment for the tourism professionals, particularly those from the CACVB constituent organizations, to socialize with each other. It was found that this social occasion had not only been used for maintaining the social relationships between tourism professional, but also been exploited by tourism organizations as an opportunity to expand their business networks and help their junior professionals to develop their own social networks for business purposes. This co-construction of networks at both interpersonal and interorganizational

level in a destination tourism system made it possible for this study to examine the structures of the boundary-spanning personnel's social networks and the tourism organization's interorganizational networks in the same tourism business environment.

The findings of the preliminary qualitative study assisted in the construction of the conceptual model for this study by providing insights to better understand the major social networking concepts and helping identify the major players in the tourism social network as well as the key issues in the socializing patterns among the professionals in tourism industry as perceived by the local destination marketing organization. The results of these interviews also contributed to the development of the online survey instrument that was used to answer the research questions and test the hypotheses presented in the following sections.

Conceptual Model Construction

Based on a review of literature on tourism system, personality, organization research, social network analysis and hyperlink network analysis, and interviews with CACVB staff, the conceptual model of this study is proposed and presented in this section. The overall conceptual model was developed based on McGrath's (1964) organizational systems framework, which consists of inputs, process, outputs and the associations between them (see Figure 3.2). In figure 3.2, link A concerns the effects of antecedent on a networking process. Link B refers to the relationship between activities and their networking associated outcomes. Link C represents the direct influence that antecedents have on outcomes. Link D suggests a reciprocal relationship between antecedents and outcomes of interorganizaitonal networks, by indicating the possibility

that prior outcomes in interorganiztinal relations may affect organizations' future interorganizational networking behaviors.

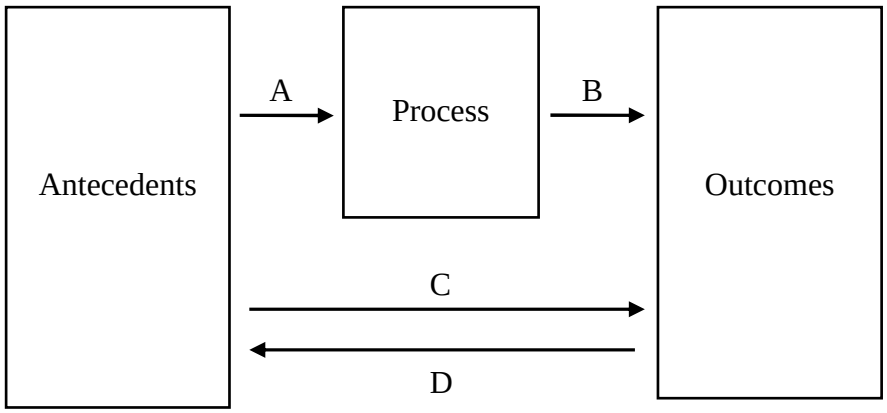

Figure 3.2 McGrath's (1964) organizational systems framework

Adapted from Street & Camerson (2007)

Extending from McGrath's (1964) framework base for a network research in the context of tourism industry, the overall conceptual model of this study is presented in figure 3.3. The conceptual model is comprised of key antecedents, mediating and moderating processes that lead to different levels of network structures, and consequences of these network structures. Accordingly, the variables examined in this study fall into four major categories: network antecedents, network structures, network outcomes, as well as network mediators and moderators.

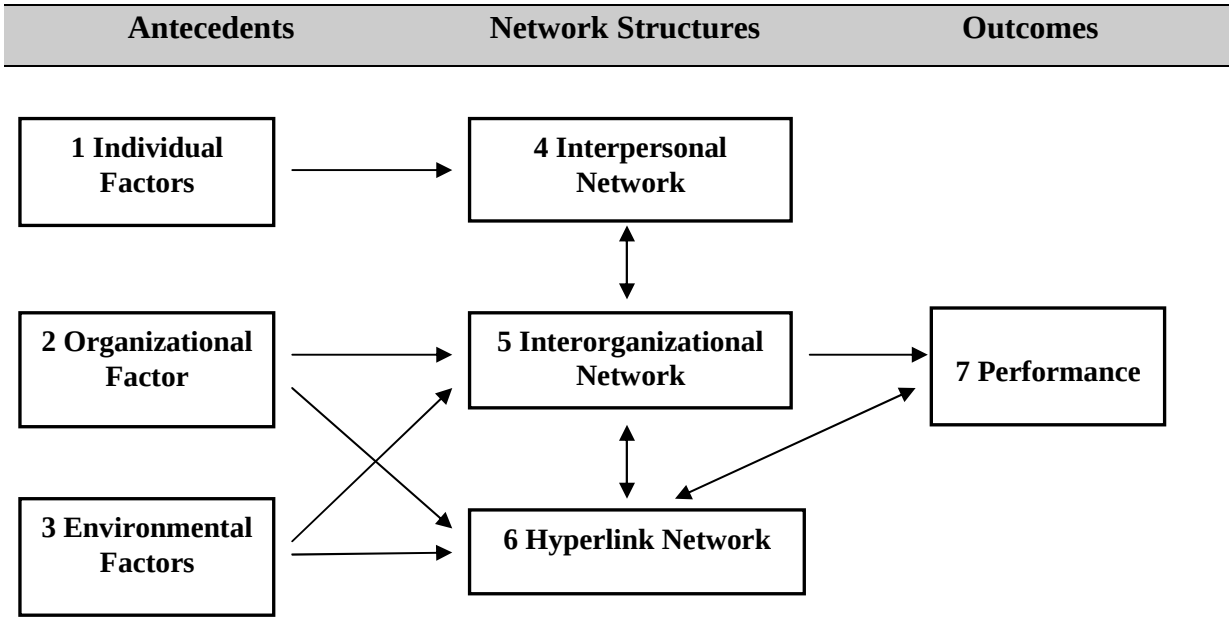

Figure 3.3 Overall Conceptual Model

From a network perspective, organizational researchers have focused on the antecedents of interorganizational relations by many levels of analysis. Brass et al. (2004) and Street and Cameron (2007) summarize three major categories of antecedent variables that have been used to investigate interorganizational networks. They are environmental factors, organizational factors, and individual factors. The network structures in the tourism industry were investigated at three subject levels: 1) interpersonal network, 2) interorganizational network, and 3) hyperlink network.

The interpersonal network among the boundary-spanning personnel (i.e. the key contact persons) of tourism organizations was included in this study for two reasons. First, any interorganizational relationship needs to be carried out by person. As economic activity cannot be analyzed without the consideration of the social context where it

occurs (Granovetter, 1985), the social embeddedness of interorganizational network should be recognized in this study by taking into account the influences of various social structures and relationships (i.e., the interpersonal networks among the boundary-spanning personnel of tourism organizations in this study) on the structure of interorganizational networks. Second, logically, the impact of individual factors (e.g., individual personality, socio-demographics) on interorganizational networks should be mediated by the interpersonal network process. For example, prior research has examined how various characteristics of the owner and/or entrepreneur influence their social network structure that contribute to the networking behaviors at interorganizational level (e.g., collaboration and use of alliance).

The interorganizational network in cyberspace was also embraced in this study by examining the hyperlink networks among the Web sites of tourism organizations. The Internet has become a new channel for communication and information exchange. On the Web, hyperlink is the basic element of the interorganizational networks, as it allows individual or organizations who run the Web sites to be linked together, exchange information, and maintain cooperative relationships around common background, interest, or project (Park, 2002). So far, very little research has been done to understand the interorganizational networks on the Web, not to mention examining the relationships between the interorganizational network online and offline. An exploratory attempt was made in this study to 1) whether and how the online and offline interorganizational networks are related to each other; and 2) whether and how the online interorganizaitonal

networks are associated to other organizational characteristics like its offline counterpart do.

Conceptual Model Elaboration

In this section, the overall conceptual model (see figure 3.3) was elaborated at three different levels: 1) interpersonal network; 2) interorganizational network; and 3) hyperlink network. The variables in each sub conceptual model were operationalized and corresponding research questions were also presented.

Conceptual Model at Interpersonal Network Level

The conceptual model at interpersonal network level focuses on the relationship between the interpersonal network and individual antecedents (see figure 3.4). The individual antecedents included in this model were based on three major dimensions: 1) personality, 2) Socio-demographic characteristics, and 3) professional characteristics. In particular, the relationship between personality and interpersonal network was the focus of analysis.

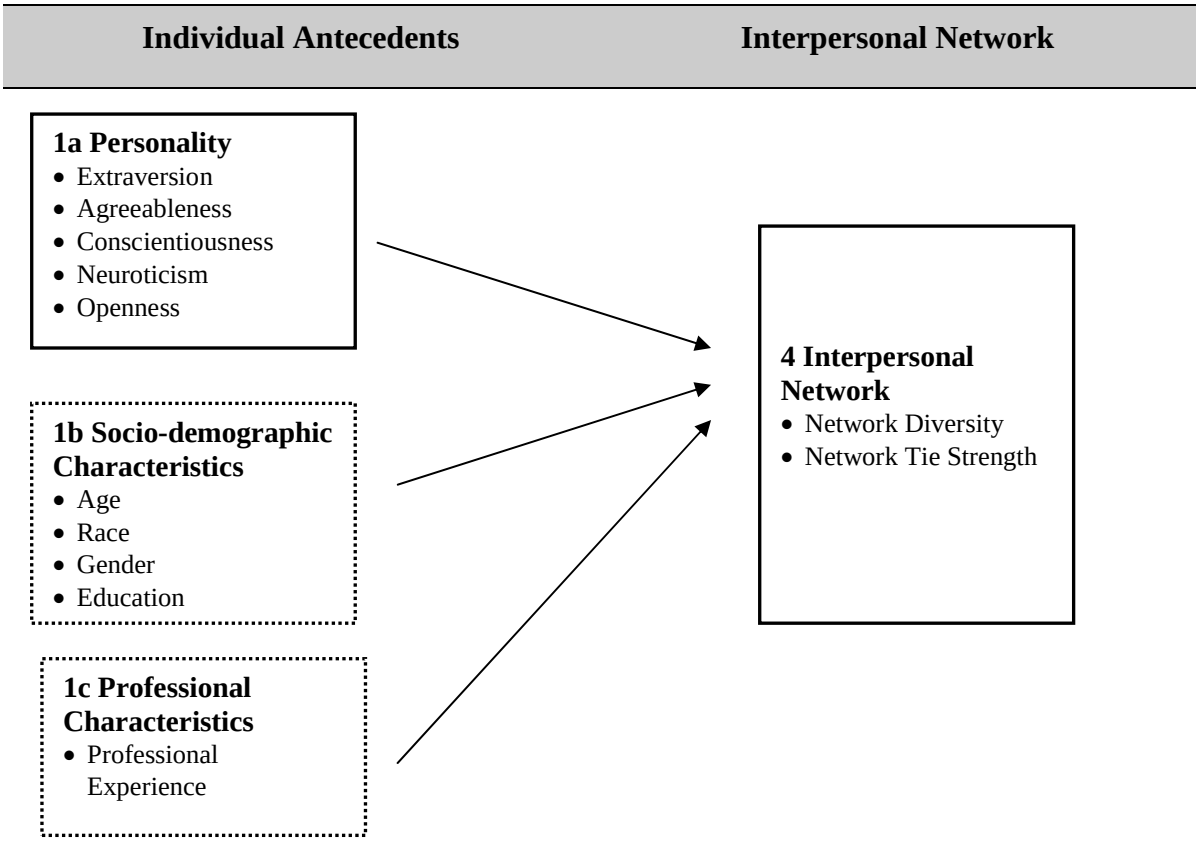

Figure 3.4 Conceptual Model at Interpersonal Network Level

Dependent Variables

The analysis at interpersonal network level embraced two dependent variables: social network diversity and social network tie strength.

Social Network Compositional Diversity

Social network compositional diversity is defined as the range or number of different social groups with which an individual has connections (Higgins & Kram, 2001). It is a configuration that provides access to diverse information and capabilities

and thus reduces redundancy . Individuals who have a greater variety of social relationships have access to more novel information and resources (Podolny & Baron, 1997). By interacting with people in other social groups, they obtain information on opportunities that would otherwise be unavailable. Bourdieu (1986) argues that as the number of connections increases outside of one's immediate group, bridging social capital is generated.

Social network compositional diversity has been widely examined for its effects on other social or behavioral outcomes (e.g., job-search behavior, job performance), while relatively less efforts have been made to examine what individual factors contribute to the formation of a diverse social network. In this study, social network diversity was treated as the dependent variable in order to examine how individual's personality would influence the width of his/her social networks.

Social Network Tie Strength

Network tie strength has attracted significant research attention after Granovetter's (1973) seminal work about the strength of weak tie. Indicating the nature of the contacts between the actors in a network, network tie strength refers to the intensity of a tie by means of the depth of friendship (Claro, Gonzales, & Neto, 2008). The importance of tie strength began to be emphasized in recent years (Burt, 2007). It is believed that the strength of the network ties are bearing on the overall amount and content of information associated with contact: strong ties reflect intense, emotion-laden, and reciprocal relationship that require time and energy to create and maintain, while weak ties reflect loose networks and are exemplified by the concept of a bridge

(Granovetter, 1973). This dimension is theoretically grounded in the concept of social capital where the central idea is that networks of strong, personal relationship developed over time can provide the basis for trust, cooperation, and collective action (Coleman, 1988).

Independent Variables

Personality

Traditionally, network theorists have devoted much of their attention to the consequences of networks and how the behavior of individuals depends on their location in the network (Wehrli & Zürich, 2008). Only recently, the interaction between personality and network position began to be recognized. Studies found that personality can affect individual's socializing behaviors and social network patterns. For example, in an organizational context, Mehra, Kilduff, and Brass (2001) found that people in the center of the networks tend to have a higher score on self-monitoring, which is believed to be a stable personality trait indicating the extent to which people monitor environmental cues and modify their behavior to meet external expectations. Burt, et al. (1998) showed how entrepreneurial personality characteristics are correlated with network constraints and bridging structural holes. Casciaro (1998) found that personality is related to individual's accuracy in network perceptions. Klein, Lim, Saltz, and Mayer (2004) suggest that a number of personality traits can predict centrality in advice, friendship, and adversarial networks within teams. While the majority of the previous studies focus on very specific and narrow conceptions of personality, relatively less works have been done to examine personality from a more broad and general perspective.

In this study, personality dimension was operationalized using the Big Five Model. Psychologists have proposed a five-factor structure to capture much of the variance in people's personality traits (Goldberg, 1993; John, 1990). The five dimensions embraced in this so-called Big-Five (Goldberg, 1981) include Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. According to Benet-Martinez and John (1998):

> "Extraversion summarizes traits related to activity and energy, dominance, sociability, expressiveness, and positive emotions. Agreeableness contrasts a prosocial orientation toward others with antagonism and includes traits such as altruism, tender-mindedness, trust, and modesty. Conscientiousness describes socially prescribed impulse control that facilitates task- and goal-directed behavior. Neuroticism contrasts emotional stability with a broad range of negative affects, including anxiety, sadness, irritability, and nervous tension. Openness describes the breadth, depth, and complexity of an individual's mental and experiential life" (p. 730).

This five-dimension structure of personality traits was used in this study to measure the influence of personality on individual's social networking behavior in tourism business environment and the formation of their business-related social capitals.

Control Variables

In addition to personality, variables that were outside of the theoretical focus of this study but could systematically affect the structure of interpersonal networks were

also included in the model as control variables. Two types of control variables were embraced. They were socio-demographic and professional characteristics.

Socio-demographic Characteristics

Socio-demographics have been extensively examined in network studies for similarity issue. Similarity is believed to be one of the major predictors of network tie formation. Research has confirmed that the homophily principle- similar people tend to interact with each other- structures network ties of every type, including marriage, friendship, work, advice, support, information transfer, exchange, co-membership, and other types of relationship (McPherson, et al., 2001). With this homophily phenomena being recognized, similarity has become a basic assumption in many social network theories (e.g., Blau, 1977; Granovetter, 1973). In social network research, similarity has been operationally defined on such socio-demographic dimensions as age, sex, education, prestige, social class, tenure, and occupation, etc (Brass, 1985; McPherson, Smith-Lovin, & Cook, 2001). For example, Blisson and Rana (2001), and Alizadeh (1998) found that the race and gender of the entrepreneur could influence the number and type of business relationship that he/she was able to access. Mehra, Kilduff, and Brass (1998) found that racial minorities tend to cluster on the periphery of networks. In this study, a number of socio-demographic variables were examined for their potential influences on individuals' network relationships. These variables include age, race, gender, and education.

Professional Characteristics

In addition to socio-demographic variables, individual's years of professional experience (i.e., years of working experience in current tourism sector) in a given

sector/field was also controlled in this analysis, as it is reasonable to expect that the longer an individual has been working in a given sector or business area, the more business connections or relationships he/she has in relevant areas.

Research Question and Hypotheses

The overall research question in this model concerned the relationships between individual's personality and social network structures. The social network structure was specified with two measures: the compositional diversity of social network and the strength of social network ties. Therefore, two sub-research questions and corresponding hypotheses were proposed as below.

Research Question 1a: How does boundary-spanning personnel's personality affect the compositional diversity of their social networks in tourism business environment?

H1a: The boundary-spanning personnel's personality (i.e., extraversion, agreeableness, conscientiousness, neuroticism, and openness) does not affect the compositional diversity of their social networks in tourism business environment.

To elaborate this general hypothesis, five sub-hypotheses were proposed respectively for each of the five personality traits, which include:

H1a-1: Extraversion is not significantly related to the compositional diversity of individual's social network in tourism business environment.

H1 a-2: Agreeableness is not significantly related to the compositional diversity of individual's social network in tourism business environment.

H1 a-3: Conscientiousness is not significantly related to the compositional diversity of individual's social network in tourism business environment.

H1 a-4: Neuroticism is not significantly related to the compositional diversity of individual's social network in tourism business environment.

H1 a-5: Openness is not significantly related to the compositional diversity of individual's social network in tourism business environment.

Research Question 1b: How does boundary-spanning personnel's personality affect the strength of their social network ties in tourism business environment?

H1b: The boundary-spanning personnel's personality (i.e., extraversion, agreeableness, conscientiousness, neuroticism, and openness) does not affect the strength of their social network ties in tourism business environment.

To elaborate this general hypothesis, five sub-hypotheses were proposed respectively for each of the five personality traits, which include:

H1b-1: Extraversion is not significantly related to the strength of individual's social network ties in tourism business environment

H1 b-2: Agreeableness is not significantly related to the strength of individual's social network ties in tourism business environment.

H1 b-3: Conscientiousness is not significantly related to the strength of individual's social network ties in tourism business environment.

H1 b-4: Neuroticism is not significantly related to the strength of individual's social network ties in tourism business environment.

H1 b-5: Openness is not significantly related to the strength of individual's social network ties in tourism business environment.

Conceptual Model at Interorganizational Network Level

The conceptual model at interorganizational network level emphasizes on the relationship among network antecedents, interorganizational network structure and organization performance (see figure 3.5). The network antecedents included in this model were based on three major dimensions: 1) environmental factors, 2) interpersonal network structure, and 3) organizational characteristics.

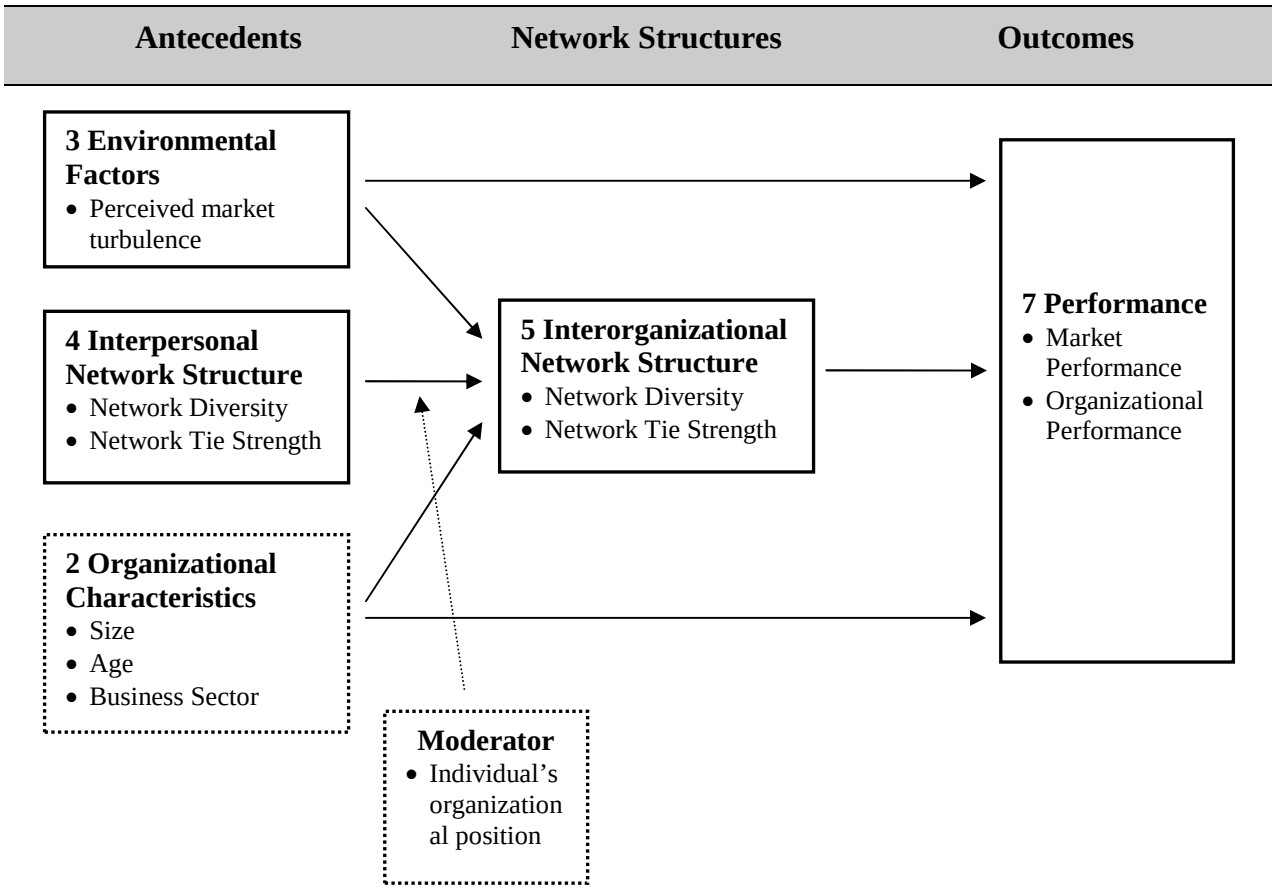

Figure 3.5 Conceptual Model at Interorganizational Network Level

Variables

Performance

Among all the network outcomes (e.g., Imitation, innovation, Firm survival, performance/success, etc.) that have been discussed in literatures on interorganizational networks (Brass et al., 2004), organizational performance is one of the most popular theme that researchers used to evaluate network consequences (Street & Cameron, 2007). Researchers have examined the effects of different network structures (e.g. centrality, clique structure, network diversity) on performance (e.g. Powell et al., 1996; Baum et al., 2000; Rowley, Baum, Shipilov, Greve & Rao, 2004). Studies also have examined the relationship between tie strength and performance. Brüderl and Preisendörfer (1998) noticed that strong and weak tie support increase sales growth for new businesses. However, Lee, Lee, and Pennings (2001) argue that network ties helped firms realize the value of internal capabilities, but were not a way of obtaining capabilities. It is argued that strong ties are able to help organizations reduce competitive intensity in stable industries, while weak ties are more valuable when the organizations need to collect a large amount of information (Rowley, Behrens, & Krackhardt, 2000).

The effects of external networking on organization performance has been considered in both objective terms like sales, profitability, or lower costs (e.g. Chen, 1999; Ballantine, Cleveland, & Koller, 1992), as well as in more subjective terms such as increased innovation and added value (Chaston, 2000; Dickson & Hadjimanolis, 1998). This study used perceptual measures for organization performance, which are derived from questions asking informants to assess the performance of their own organization

relative to that of the industry competitors. Two dimensions were involved in the performance measures: 1) the perceived organizational performance, which measures important issues like product quality, customer satisfaction, and new product development; and 2) the perceived market performance that focuses on economic outcomes by measuring profitability, market share, and growth in sales, etc. Together, these two dimensions of performance measures can provide a broad assessment of perceptions of an organization's performance.

Interorganizational Network Structure

Similar to interpersonal network structure measures, the network structure at interorganizational level was also examined with two measures: Network Compositional Diversity and Network Tie Strength. The interorganizaitonal network compositional diversity is defined as the number of different sectors in tourism industry that a given organization has formal or informal relationship with. Studies in biotech industry (Powell, Koput, & Smith-Doerr, 1996) and startups (Baum, Calabrese & Silverman, 2000) have found that a diverse set of contacts can be beneficial for firm performance. Relative to the network diversity that emphasizes on the extent of an organizaiton's relationships with others, the interorganizational network tie strength is actually an examination of the forms of relationship that an organization has with others. In this study, the strength of interorganizational relationship is conceptualized by three levels or forms, which are "only business relation", "strategic collaboration/partnership", and "franchising/surrogating relation".

Environmental Factor - Market Turbulence

Sustainable competitive advantage lies in a firm's ability to quickly adapt to the changing environment (Calantone, Garcia, & Dröge, 2003: 92). Studies have examined whether and how environmental conditions affect collective and interorganizational actions. Causal relationship has been found between various environmental dimensions and firm's competitive strategies (Emery & Trist, 1965). Dess, Ireland, and Hitt (1988) explored the association between the firms' interorganizational behaviors and their industrial conditions.

Market turbulence is employed to operationalize the environmental antecedent in this study. Market turbulence is characterized by "…continuous changes in customers' preferences/demands, in price/cost structures, and in the composition of competitors" (Calantone, Garcia, & Dröge, 2003: 92). Chakravarthy (1997) suggests that market turbulence is also features with the dissolution of traditional industry boundaries, which, for instance, has occurred in the communications and media industries.

Interpersonal Network Structure

The operationalization of interpersonal network structure was discussed in the conceptual Model at Interpersonal Network Level. Two variables were used to measure the interpersonal network structure: 1) social network diversity, and 2) social network tie strength.

Organizational Characteristics

The organizational characteristics were mainly used as control variables in this study. For most interorganizational network studies, organizational –level antecedents

tend to focus on organization resources, power, and control (Bamford, Gomes-Casseres, & Robinson, 2003). Organization size is believed to be related to interorganizational network relationships. Shan (1990) found that small firms are more likely to form cooperative arrangements than larger firms. However, in relationships between businesses of unequal sizes, the smaller firms are usually asked to take on greater risk (Sulej, Stewart, and Keogh, 2001). Organization age is also believed to be a relevant variable as it is reasonable to expect that a longer history in business may result in a higher possibility of diverse interorganiztional networks and strong network relationships.

Research Question and Hypotheses

The research questions and corresponding hypotheses derived from this model included:

Research Question 2: How do tourism organization's interorganizational networks affect their performance?

H2a: The compositional diversity of interorganizational network is not significantly related to organization's market performance.

H2b: The compositional diversity of interorganizational network is not significantly related to organization's organizational performance.

H2c: The tie strength of interorganizational network is not significantly related to organization's market performance.

H2d: The tie strength of interorganizational network is not significantly related to organization's organizational performance.

Research Question 3: How do environmental factors influence the tourism organization's performance?

H3a: Perceived market turbulence is not significantly related to organization's market performance.

H3b: Perceived market turbulence is not significantly related to organization's organizational performance.

Research Question 4: How do environmental factors influence the tourism organization's interorganizational network structure in a destination?

H4a: Perceived market turbulence is not significantly related to the compositional diversity of organization's interorganizational network.

H4b: Perceived market turbulence is not significantly related to the strength of organization's interorganizational network ties.

Research Question 5: How do tourism organization's interorganizational networks mediate the relationship between environmental factors and performance?

H5a: The compositional diversity of organization's interorganizational network does not mediate the relationship between perceived market turbulence and organization's market performance.

H5b: The compositional diversity of organization's interorganizational network diversity does not mediate the relationship between perceived market turbulence and organization's organizational performance.

H5c: The tie strength of organization's interorganizational network does not mediate the relationship between perceived market turbulence and organization's market performance.

H5d: The tie strength of organization's interorganizational network diversity does not mediate the relationship between perceived market turbulence and organization's organizational performance.

Research Question 6: How does the boundary-spanning personnel's social network affect organization's performance?

H6a: The compositional diversity of boundary-spanning personnel's social network is not significantly related to organization's market performance.

H6b: The tie strength of boundary-spanning personnel's social network is not significantly related to organization's market performance.

H6c: The compositional diversity of boundary-spanning personnel's social network is not significantly related to organization's organizational performance.

H6d: The tie strength of boundary-spanning personnel's social network is not significantly related to organization's organizational performance.

Research Question 7: How does boundary-spanning personnel's social network affect tourism organization's interorganizaitonal network structure in a destination?

H7a: The compositional diversity of boundary-spanning personnel's social network is not significantly related to the compositional diversity of organization's interorganizational network.

H7b: The boundary-spanning personnel's organizational position does not moderate the relationship between the compositional diversities of his/her social network and organization's interorganizational network.

H7c: The tie strength of boundary-spanning personnel's social network is not significantly related to the tie strength of organization's interorganizational network.

H7d: The boundary-spanning personnel's organizational position does not moderate the relationship between the tie strengths of his/her social network tie strength and organization's interorganizational network.

Research Question 8: How do the interorganizational network structures mediate the relationship between the boundary-spanning personnel's interpersonal network structure and organization' performance?

H8a: Organization's interorganizational network diversity does not mediate the relationship between boundary-spanning personnel's interpersonal network diversity and organization's market performance.

H8b: Organization's interorganizational network diversity does not mediate the relationship between boundary-spanning personnel's interpersonal network diversity and organization's organizational performance.

H8c: Organization's interorganizational network tie strength does not mediate the relationship between boundary-spanning personnel's interpersonal network tie strength and organization's market performance.

H8d: Organization's interorganizational network tie strength does not mediate the relationship between boundary-spanning personnel's interpersonal network tie strength and organization's organizational performance.

Conceptual Model at Hyperlink Network Level

The conceptual model at hyperlink network level mainly focuses on the relationships between tourism organizations on the Web and how it is related to the interorganizatioal relationships offline (see figure 3.6). This model also attempts to explore if the hyperlink network structures among the Web sites of tourism organizations are affected by organizational characteristics, and whether the hyperlink network structures are related to tourism organization's performance.

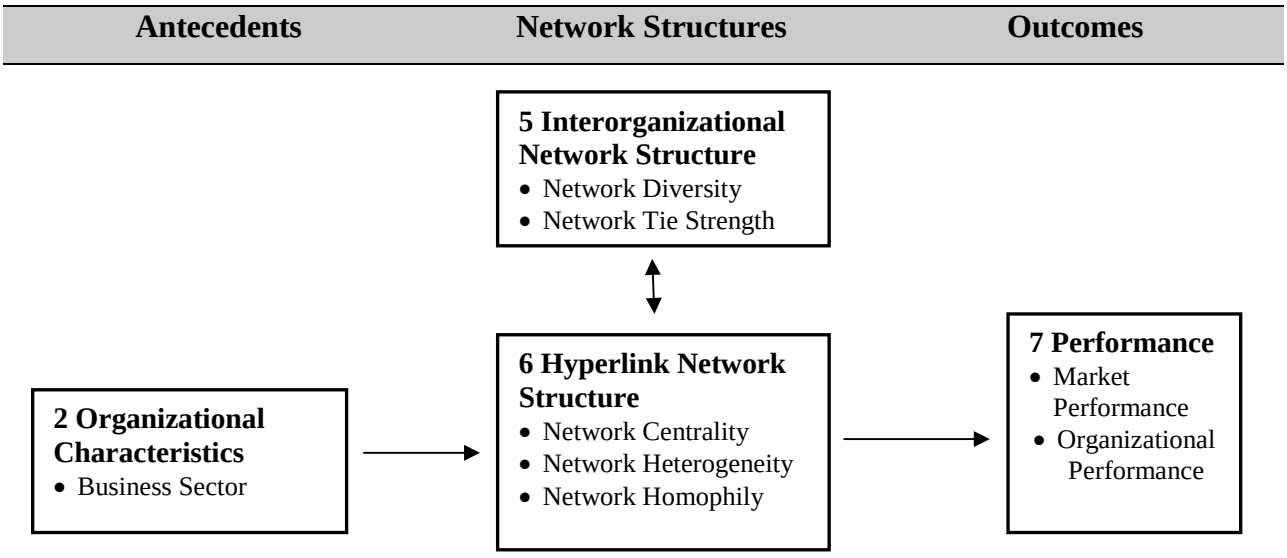

Figure 3.6 Conceptual Model at Hyperlink Network Level

Variables

The operationalization of organizational characteristics (i.e., business sector), interorganizaitonal network structure (i.e., network diversity and network tie strength),

and performance (i.e., market performance and organizational performance) have been discussed in previous sections. Therefore, only the elaborations of hyperlink network structure measures are discussed in the present section.

Network Centrality

The network centrality measured in this study is the *Degree Centrality*. By counting how many ties a given actor has to other actors, the network degree centrality is a measure of the extent to which an actor occupies a central position in the network. The hyperlinks among the Web sites are directed, which suggests that site A sends a link to site B does not necessarily mean that site B has to have a reciprocal link sent back to site A. Therefore, two types of degree centrality need to be calculated, namely indegree centrality and outdegree centrality. Indegree is a count of the number of ties directed to the given node, and outdegree is the number of ties that the given node directs to others. For positive relations such as friendship or advice, the indegree centrality is usually interpreted as a form of popularity, and outdegree as gregariousness. In the context of hyperlink network in cyberspace, the indegree centrality can be understood as a measure of popularity or significance of the information contained in the given Web site, while the outdegree centrality represents a Web site's ability to provide or disperse diverse information.

Network Heterogeneity

Corresponding to the compositional diversity of interorganizational network in offline context, the hyperlink network heterogeneity measures the range of different sectors that its connections belong to in cyberspace.

Network Homophily

The variable of network homphily measures the similarity in networking behaviors among a group of actors. Similarity is believed to be one of the major predictors of network tie formation. Research has confirmed that the homophily principle- similar people tend to interact with each other- structures network ties of every type, including marriage, friendship, work, advice, support, information transfer, exchange, co-membership, and other types of relationship (McPherson, et al., 2001). This homophily principle implies that "…any social entity that depends to a substantial degree on networks for its transmission will tend to be localized in social space and will obey certain fundamental dynamics as it interacts with other social entities in an ecology of social forms (McPherson, et al., 2001: 416). With this homophily phenomena being recognized, similarity has become a basic assumption in many social network theories (e.g., Blau, 1977; Granovetter, 1973). In the context of hyperlink network in this study, similarity was operationally defined on the organizational characteristic of business sector. Therefore, this network homophily measure is actually testing whether and to what extent the Web sites of tourism organizations tend to develop hyperlinks to the Web sites of tourism organizations that are in the same sector with them.

Research Question and Hypotheses

The research questions and corresponding hypotheses derived from this model include:

Research Question 9: How are the organizational characteristics related to the hyperlink network structure of tourism organizations?

H9a: Organization's business sector is not significantly related to its network centrality in cyberspace.

H9b: Organization's business sector is not significantly related to its network diversity in cyberspace.

H9c: Organization's business sector is not significantly related to its network homophily in cyberspace.

Research Question 10: Are the interorganizational network structure offline related to the hyperlink network structure of tourism organizations?

H10: Organization's interorganizational network diversity offline is not significantly related to its network diversity in cyberspace.

Research Question 11: Are the hyperlink network structures of tourism organizations related to their organization performance?

H11a-b: Organization's network centrality in cyberspace is not significantly related to its 1) organizational and 2) market performance.

H11c-d: Organization's network diversity in cyberspace is not significantly related to its 1) organizational and 2) market performance.

CHAPTER FOUR

RESEARCH DESIGN AND METHODOLOGY

This chapter presents the methodological basis for empirically testing the conceptual model constructed in Chapter Three and interpreting the results from data analysis. This chapter consists of four sections. The first section concerns the sample used for the study. The second section describes the survey administration and data collection for hyperlink network study. In section three, the survey instrument development procedure is discussed. The final section deals with the data analysis strategies for proposed research questions and hypotheses.

Study Site

Charleston, South Carolina was chosen as the research area for this study. The city of Charleston is located just south of the mid-point of South Carolina's coastline, at the confluence of the Ashley and Cooper Rivers (see figure 4.1). Charleston's name is derived from Charles Towne, named after King Charles II of England. It is the largest city and the county seat of Charleston County (National Association of Counties, 2008). Charles Towne (renamed Charleston in 1783) was the political, social, and economic center of the state throughout the colonial and antebellum periods, and it served as the capital until 1790. It is also the oldest city in the state of South Carolina and the second largest city in the state. The city of Charleston was originally located on the west bank of the Ashley River, and moved to its present location at Oyster Point in 1680.

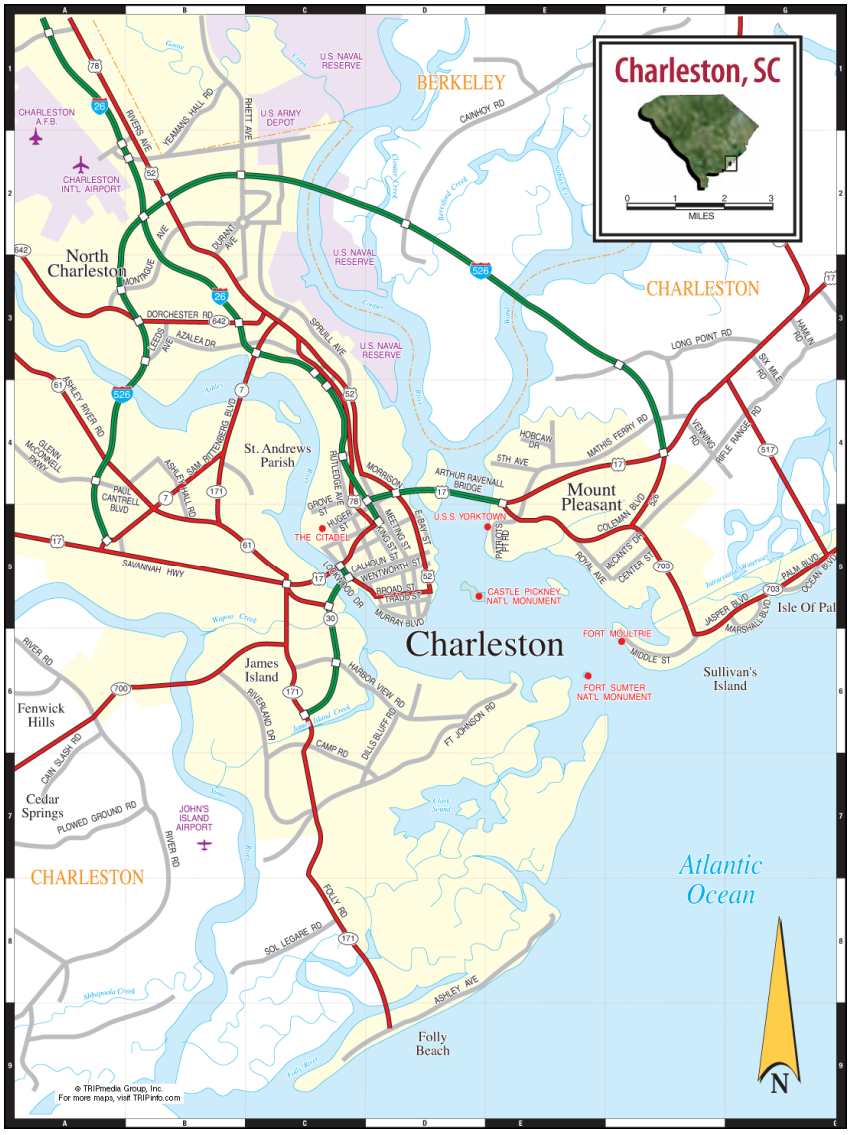

Figure 4.1 Map of Charleston, South Carolina (cited from www.tripinfo.com/maps/SC-Charleston.htm, 2010)

Charleston is one of the most historic locations in the state of South Carolina. During the Revolutionary War the American forces defeated the attacking British fleet at Charleston in June 1776. At another Charleston fort, Fort Sumter, federal troops were fired on by Confederate forces in April 1861, signaling the start of the Civil War (South

Carolina Association of Counties, 2008). In 1690, Charleston was the fifth largest city in North America (Charleston Time line, 2007) and remained among the ten largest cities in the United States through the 1840 census (US Census Bureau, 2008). The population was estimated to be 111,978 in 2008, which makes it the second most populous city in South Carolina, closely behind the state capital Columbia (City of Charleston, 2007). Current trends put Charleston as the fastest-growing municipality in South Carolina.

Geographically, the city's Standard Metropolitan Statistical Area (SMSA) encompasses three counties-Charleston, Berkeley, and Dorchester—and is known as the "Tri-County" or "Trident" area. The Charleston area considered in this study included Downtown Charleston, Mount Pleasant, Daniel Island, North Charleston, West Ashley, Isle of Palms, Sullivan's Island, Kiawah Island, Seabrook Island, and Folly Beach.

The rich history, tradition and Southern charm have made Charleston a prim destination for cultural tourists and family vacationers. Charleston offers numerous historical, cultural, and natural recreation opportunities for both residents and tourists. The 1,785-acre historic district in the city is a major attraction for the tourists, which features colonial architecture, cobblestone streets, and horse-drawn carriage tours (Harrill & Potts, 2003). With many art galleries and museums, a symphony orchestra, community theater groups, and ballet companies, Charleston is known as a destination rich in fine arts and performing arts. The City also sponsored a variety of events and festivals such as the Spoleto Arts Festival, Charleston Air Expo, Charleston Fashion Week, and Charleston Food and Wine Festival, etc. In the 1990s, Charleston added an aquarium and waterfront park to its list of attractions

In 1993, 5 million tourists visited Charleston, and by 1997, this figure had increased to 7.4 million people who contributed $2.3 billion tourist dollars to the local economy (Todman & McLaughlin, 1999). According to the Charleston Convention and Visitor Bureau's recent study, about 4.2 million tourists visit Charleston each year. On average, visitors spend $235 per person, per day. Thirty two percent of the Charleston area visitors have an average household income of $100,000 or more, and about one quarter (24%) of Charleston visitors have graduate degrees or higher, resulting in well-read, experienced travelers.

Target population

The tourism-related businesses and organizations located in these designated areas are the target population of this study. The research subjects of this study are the boundary-spanning personnel (i.e. the key contact person(s) who assumes the outside networking responsibilities) of tourism-related businesses and organizations in Charleston area as well as the Web sites of these organizations on the Web.

Tourism is a complex and systematic concept. The difficulty has been recognized in determining whether or not an economic activity or a social entity should be defined as a component of the tourism system. Based on the inventories used by major international tourism organizations (e.g., OECD, 2000; UNWTO, 1995, 2000) for tourism statistic data (Baggio, 2008) and by major tourism text books, this study developed a list of specific sectors, belonging to which businesses and organizations are considered as tourism-related (see Table 4.1).

Table 4.1 Component Sector Categories of a Tourism System

Category	**Subgroups**
Accommodation	Hotel, Motel, B&Bs, Inns, Resort, Campground, Estate rentals, and other accommodation service
Food and Beverage	Restaurants, Bars and Pubs, Catering service, and other Food and Beverage service
Cultural Attractions	Museums, Galleries, Plantations, Performing arts, Historical sites, Events, Festivals, etc.
Natural Attractions	National/State/Local Parks, Gardens, Coasts and Beaches, etc.
Recreation Operators	Spectator sports, Golf, Water sports, Sightseeing, Biking, etc.
Entertainment Services	Amusement and theme parks, Theater, Marina, Night Clubs, Shopping facilities, etc.
Tourism Intermediaries	Tour operator, Travel agencies, Tour guide service, Convention and meeting planner, Wedding and event planner, Convention centers, Real Estate, etc.
Transportation	Air lines, Car rentals, Motor coaches, Railway, Cruise lines, Maintenance and repair service, and other transportation Organizations
Tourism Media	Flat media, Multi-media, Other media
Tourism Industry Associations	
Public Tourism Bodies	Tourism related government bodies and commissions
Other Tourism Services	

Sampling Frame

Although network analysis usually requires collecting data from all the members of a social network, sample data also has been used when the research is on a large scale and a particular population of agents are involved in a complex system of relations that make up the total network (Scott, 2000; Timur, 2005). The sampling process is comprised of two separate but also relevant frames that respectively correspond to different research objectives and research questions.

In order to answer the research questions on the antecedents and outcomes of, and interrelationships between the interpersonal and interorganizaitonal networks in Charleston's tourism industry, the travel council investors of the Charleston Area Convention and Visitors Bureau (CACVB) were chosen as the research subjects for the survey study. As the private sector marketing fund for the Charleston Area Convention and Visitors Bureau's promotional programs, the CACVB Travel Council is composed of businesses that directly and indirectly benefit from the local tourism industry. Currently, the CACVB Travel Council has 337 active investors, covering a wide range of tourism-related sectors. The representatives from the constituent businesses or organizations of the CACVB Travel Council were treated as the survey and analysis subjects by this study, because they were the ones who assumed the functioning role of their organizations as a CACVB Travel Council investors.

For the study on the hyperlink networks among the tourism organizations in Charleston, a different sampling strategy was employed. Based on the tourism sector inventory presented in table 4.1, 770 organizations and businesses in Charleston area

were identified as tourism-related and sampled by searching on the local online information portals as well as on the Web sites of local business/industry organizations (see table 4.2 for the list). These 770 tourism organizations covered all the identified sectors in tourism industry and their Web sites or URLs were collected for conducting a series of hyperlink searches using Webometrics approaches. The results of the hyperlink searches were used as the relational data for constructing online interorganizational networks among these tourism organizations for further network analysis.

Table 4.2 Online Information Sources for Tourism Business/Organization Search

Information Search Source	Website
South Carolina Information Highway	www.sciway.net
Charleston, SC	www.charleston.com
City of Charleston	www.charlestoncity.info
Charleston's Finest – city guide	www.charlestonsfinest.com
Dream Charleston SC	www.dreamcharleston.com/
Charleston Hotel Guide	www.charlestonhotelguide.com
The Charleston Area Convention and Visitor Bureau	www.charlestoncvb.com
The Charleston Metro Chamber of Commerce	www.charlestonchamber.net

Unit of Analysis and Informant

In his review of the complexities in determining the appropriate units of analysis in organizational research, Freeman (1978) suggests that the selection of a unit of analysis should be guided by the level of analysis at which important dependent variable are conceptualized. Aiming to explore the interrelationships among individual antecedent (i.e. personality), inter-personal networks and interorganizational networks of tourism businesses in a destination, multiple levels of analysis were involved in this study. Accordingly, the unit of analysis for this study consisted of the individual participant who represented his/her organization in the CACVB Travel Council, the social network structures of these individuals in tourism business context, as well as the business network structures of these tourism organizations both online and offline.

Representatives of the constituent organizations in the CACVB Travel Council acted as the key informants for the survey part of this study. They reported on their personality traits at the individual level; their management of personal relationships with tourism professionals at interpersonal level; and their perceptions of various organizational constructs and network structure at the interorganizational level.

As most constituent organizations in travel council only had one contact person representing the organization and socializing with the others in various social occasions, a single-informant approach was adopted for the survey data collection of this study. The extent of within-organization variation on the characteristics in question is a major determinant of how many informants are needed from one organization to obtain an aggregate-level measure with adequate reliability (Knoke et al. 2002). Aday (1991)

suggests that one informant is usually adequate to describe structurally undifferentiated organizations. However, Knoke et al. (1991) show that the necessary number of informants should depend on the type of items administrated in organizational surveys. It is found that agreement among informants is high on such features as organizational age and size, but low on the features like perceptions of organizational culture (Zammuto & Krakower, 1991) or descriptions of the division of labor, etc.

Although the single-informant approach has been used extensively in management research and is considered a reliable source when the informant is senior enough in the organization (BarNir and Smith, 2002), concerns also emerge with respect to the common methods variance. Philips (1981) suggests that, in order to attenuate measurement error, questions should be asked in a manner that allows the informants to report more on relatively objective, observable phenomenon and make less demanding social judgments. Following BarNir and Smith's (2002) strategies, two measures were taken in this study to minimize the risk of single-informant bias by anchoring the response in facts and numbers. First, questions were designed in such a fact-based way that respondents had to think about the factual information (e.g., the exact name of a business collaborator, etc.) and questions involving informant's attitudes were avoided. Second, where it was applicable, questions were phrased in such a way that the respondents had to quantify their responses (e.g., the specific number of business contacts in a given period of time).

Data Collection

Corresponding to the research questions, two separate yet related data collection strategies were adopted in this study. They were an online survey and online hyperlink search.

Online Survey

A cross-sectional, self-administrated online survey was used for the data collection and theory testing in this study. This approach was chosen based on four considerations. First, as this study aimed to investigate the social networks within Charleston's tourism industry that was comprised of a broad range of business sectors, a cross-section design was essential to achieve full understanding of the structure of these social networks. Second, in order to test hypotheses grounded in theory, a sufficient sample size is required to allow for statistical inference. A self-administrated survey was a suitable choice for this study as it allows collecting a relatively large number of observations at a comparatively low cost. Third, by using online survey, it allowed a more dynamic interaction between respondents and questionnaire by providing survey capabilities far beyond those available for any other type of self-administrated questionnaire, for example, skip patterns, pop-up instructions, and drop-down boxes with long list of answer choices, etc. (Dillman, 2000). Fourth, since this study also involved questions concerning perception, satisfaction and personality, a self-administrated approach may help mitigate the risk of interviewer bias. The limitations and potential risks of self-administrated surveys had also been taken into account in this study. A number of measures were carried out during both the survey design and data collection

phases to reduce the non-response risk and reporting biases, and will be addressed in detail in following sections.

By using an online survey, it allowed a more dynamic interaction between respondents and questionnaire by providing survey capabilities far beyond those available for any other type of self-administrated questionnaire.

Initial Draft

The development of the survey instrument closely followed Dillman's (2000) tailored design approach to maximize potential response rate. The majority of the questions were developed based on previous work and literature review. Interviews with staff in the Charleston Area Convention and Visitor Bureau and its Travel Council during the preliminary qualitative phase also contributed to questionnaire refining with respect to wording and terminology. In addition, the survey instrument was pretested with two practitioners and three academic experts in tourism area. The Human Subject Committee of Clemson University reviewed and approved the survey instrument.

The survey questionnaire consisted of seven sections. The first section asked questions about the background information of the respondent's organization. The second section measured respondents' perceptions of business environment for their organizations. The third section measured respondents' perception of their organization's performance. The fourth section concerned the social capital that the respondents had in Charleston's tourism industry. The fifth section contained questions about actual interorganizational relationships that respondent's organization had. The sixth section

was about respondent's demographics and their professional experiences. Respondents' personality traits were measured in section seven.

Pilot Study

A pilot study was conducted to test the survey instrument and methods of analysis, and validate the items generated for this study. Eight CACVB Travel Council investors were invited after a monthly travel council meeting to participate in this pilot study and six responses were collected. For each of the participants, an email survey invitation was sent along with the link to the online questionnaire. The actual administration of the pilot study followed the same steps as the final survey. At the end, the questionnaire asked the respondents to report the time they spent to fill out the instrument. Their opinions on the length of the questionnaire were also measured in a five-point Likert-type scale ranging from "Not long at all" to "Too long". The questionnaire also had an open-ended section asking respondent whether they faced any problems while completing the questionnaire and whether there were any ambiguities regarding any items in the questionnaire.

As a result of the pilot study, some modifications were made in the personal social network scale, and a few items were added in the scale measuring personality traits. Slight changes were also made to the invitation email and instructions in the survey instrument. The respondents report that the survey took about 15 minutes to complete, and all of them thought the survey was "not long at all" or "not long".

Final Draft

The final survey instrument had seventy nine questions that were arranged to be displayed through eight sequential screens. It can be found in Appendix A. The online survey service *Survey Monkey* (www.surveymonkey.com) was used to develop and administer the online survey.

In order to reduce the risk of common method variance, items measuring different constructs were inter-mixed within the broader sections, and reverse worded items were also included in the measuring scales. At the beginning of the survey, it was stressed that this study was conducted by a third party – Clemson University, which was designed to minimize the risk of social desirability bias that might exist among the respondents who were all investors of the CACVB travel Council. An open text space was also provided at the end of the survey asking the respondents' for any comments and suggestions on the CACVB Travel Council's services.

Survey Administration

The survey administration involves four major phases. The initial advertisement about this study and the survey was made at the CACVB Travel Council monthly meeting held on February 9, 2010 at a restaurant in Mt. Pleasant. About 75% of the travel council investors attended the meeting. An executive director of the CACVB introduced this study to the meeting attendees and invited them to participate in the later-launched survey. A pre-note of the survey was then emailed to every travel council investor a day after the meeting (see Appendix B).

The formal survey invitation was sent out to the 336 CACVB Travel Council Investors via email on February 6th, 2010 (see Appendix C). Within the invitation, a link was provided to navigate the potential respondents to the survey web page. Sixteen contacts' email addresses were found invalid, and two valid contacts emailed back indicating that they prefer a hard copy of the questionnaire. For these eighteen contacts, a paper copy of the survey questionnaire was mailed to them on the same date. Another nine contacts were found out of office and unable to be reached. Therefore, the total number of valid contacts for the first round of the survey was 327. A reminder email/postcard was sent a week after the initial survey invitation (see Appendix D), followed by another reminder email sent another week later (see Appendix E). Both the two email reminders contained the link to the online survey webpage.

Hyperlink Network Data Collection

The Web sites or URLs of the 770 identified local tourism-related organizations were first compiled in a list for conducting a series of hyperlink searches. The hyperlink searches were carried out with the assistance of a link search program called *LexiURL Searcher*. LexiURL Searcher is a free program developed by Mike Thelwall (2009) of University of Wolverhampton, UK. It is design to gather data from the web from different sources and conduct automatic web analyses of various types for social science research purposes. Using commercial search engines (e.g. Yahoo, Live Search, etc.) or directly download sets of web pages and submit automatic queries to Technorati (blog search) and YouTube, the LexiURL Searcher can create network diagrams of collections of web sites, estimate the online impact of collections of web sites or ideas, and retrieve

information on a large scale about blogs and YouTube videos. For this study, inter-hyperlink search was conducted among the Websites of tourism-related organizations in Charleston Area.

Inter-hyperlink Search

Data on the inter-hyperlink networks among the web sites of tourism-related organizations in Charleston area were obtained using the following methods. First, the web sites or URLs of 770 identified tourism-related organizations were first screened before the development of search queries. Fifty five web sites or URLs were found having extra path and/or file names in addition to their domain names. This issue mainly happened to the franchising businesses in the *Accommodation* sector, for example, the websites of Days Inn Historic District of Charleston [*www.daysinn.com/DaysInn/PropertyMapper/charleston05262*]. As the search engine accepts link search query with only domain name in it, those additional path and/or file names in the web sites or URLs were removed and only their domain names were kept for link search, for example, the link search query of Days Inn Historic District of Charleston would be [*www.daysinn.com*]. One concern about this web site or URLs transformation is that the link search is unable to differentiate the network influences among those tourism businesses or organizations sharing the same domain names. For instance, all the franchising hotels of *Holiday Inn* in Charleston was viewed as a single actor in this inter-hyperlink network analysis. After the websites or URLs transformation, 745 valid websites were identified for develop the inter-link search queries.

The format of the inter-link search query is [linkdomain:A site:B], which counts the number of pages that contain a link to any page in site A from site B. As the hyperlinking between site A and site B is directional, the relationships between the two sites need to be examined by searching both the hyperlinks from site A to B and the hyperlinks from site B to site A. For a set of n websites, n(n-1) times of link searches are needed to construct the full inter-inlink data matrix. In this analysis, 554,280 link searches were run for data collection on inter-link network.

After the inter-link search, the data were used to construct a inter-hyperlink network among the 745 websites. The output of inter-link search from the LexiURL Searcher was converted into a n×n data matrix (n=745), with the assistance of the Pajek program (Batagelj & Mrvar, 2003). Since this study mainly focused on the presence/absence of online connections among the tourism-related organizations other than the strength of these relationships, the inter-link data matrix was then dichotomized with 1 (i.e. has a relationship) and 0 (i.e. has no relationship). Using network analysis techniques, the inter-link data matrix was analyzed for its network characteristics.

Survey Measures and Scale Development

In this section, the operationalization of the variables and the development of measurement scales are discussed. A clear definition of the conceptual domain of the construct is critical for the assessment of the validity of a measure. The majority of the constructs employed in this study were derived from previous research and preliminary interviews, and the operationalization of the variables in this study refers to the pre-existing, validated scales when available.

Personality

The conceptualization of personality as five dimensions was introduced in previous chapters. To measure this five-factor structure of personality, a modified version of the "Big Five Inventory" was used in this study. The original "Big Five Inventory" was developed by John et al. (1991). The instrument has forty four items, with eight to tenitems for each personality dimension measuring. The validity and reliability of this instrument has been verified in a wide range of studies (e.g. Johnson and Wolfe, 1995; Watson, Clark, and Harkness, 1994). Based on this 44-item "Big Five Inventory", Rammstedt and John (2007) managed to abbreviate the instrument to a shorter 10-item version with its reliability and validity still retained at significant level. The researchers found that this 10-item short version of "Big Five Inventory" "…captured 70% of the full BFI variance and retained 85% of the retest reliability. Discriminant and structural validity, however, remained essentially the same" (Rammstedt & John 2007: 210). The loss of this short BFI instrument was also noticed by researchers, and was most substantial for the BFI-10 Agreeableness scale where extra measuring items were suggested. The Big Five Inventory used in this study was modified from the short 10-item version of BFI by adding two items for each of the five personality dimension measuring. These additional items were chosen from the original 44-item BFI instrument based on researchers' recommendations (e.g., Rammstedt & John 2007). The final instrument (see table 4.3) had 20 items measured on a 7-point Likert-type scale ranging from 1 (Strongly disagree) to 7 (Strongly agree).

Table 4.3 Items on the Big-Five Personality Traits

I see myself as someone who…
Extraversion
is reserved*
is outgoing, sociable
is talkative
tends to be quiet*
Agreeableness
is generally trusting
tends to find fault with others*
is considerate and kind to almost everyone
is sometimes rude to others*
Conscientiousness
tends to be lazy*
does a thorough job
can be somewhat careless*
tends to be disorganized
Neuroticism
is relaxed, handles stress well*
gets nervous easily
worries a lot
is emotionally stable, not easily upset*
Openness
has few artistic interests*
has an active imagination
is inventive
is original, comes up with new ideas

* Measures on a scale of 1= Strongly Disagree to 7= Strongly Agree.
* was reverse coded

Items for this instrument were selected from Big Five prototype definitions, and developed through adding elaborative, clarifying, or contextual information to one or two prototype trait adjectives (John, 1990). In this way, the BFI items are expected to avoid

the shortcomings of the single-adjective approach (e.g. Goldberg, 1992) in ambiguous meanings and salient desirability, but still keep brief and simple. For example, "the Conscientiousness adjective persevering served as the basis for the BFI item 'Perseveres until the task is finished,' and the Openness adjective original became the BFI item 'Is original, comes up with new ideas'." (Benet-Martinez & John, 1998: 730).

Boundary-spanning Personnel's Social Networks Structures

A structured positional generator was used to examine the richness of social resources a respondent has for his/her business or career in tourism industry. Positional generators "ask respondents to report whether they have contacts in certain social position" (Knoke and Yang, 2008: 25). In this study, respondents were asked to report if they knew any people who worked at managerial level or owned a business in each of the fourteen specific tourism-related sector or areas. If they did, the respondents were also asked to indicate the strength of their social connections in each of the sectors on a scale of 1=know as acquaintance, 2= know as friend/relative, and 3= know both acquaintances and friends. The following sectors were included in the scale as items: Accommodation; Food and Beverage; Cultural Attractions; Natural Attractions; Recreation Operators; Entertainment organizations; Tourism Intermediaries; Transportation; Tourism Media; Local Tourism or Business Organizations or Associations; Government bodies; Tourism-related academic institutions; Local Community/Resident Organizations.

Using the data generated by the structured positional generator, the boundary-spanning personnel's social network structure was operationalized by two network measures: the compositional diversity of respondents' social network and the strength of

these network ties. Individual's social network diversity in business context was measured by calculating the number of identified tourism-related sectors in which the respondent knew at least some acquaintances working at managerial level. This index ranged from 0 to 14 as there were 14 sectors in the scale that were identified as tourism-related sectors in Charleston's tourism industry. Individual's social network tie strength in business context was measured by calculating the average tie strength of individual's social connections in all the 14 identified tourism-related sectors. This average tie strength index ranged from 1 (all the social connections that individuals had in relevant sectors were only at acquaintance level) to 3 (the social connections that individuals had in relevant sectors all included both acquaintance and friend/relatives).

Interorganizational Network Structure

Similar to the measures of interpersonal network structure, the examination of the business networking behavior at organizational level was also carried out by two dimensions: network diversity and network tie strength. As the boundary-spanning personnel of the tourism organizations, the respondents were asked to report if their organization has been in any collaboration or working relations in funding, market development, technology, logistics, co-investment, consulting, and sponsoring over the past three years with organizations belonging to a specific tourism-related sector or areas. If ok, they were then asked to indicate the level of these interorganizational relationship on a scale of 1= 'Only business relation', 2= 'Strategic collaboration/partnership', and 3= 'Franchising/surrogating relation'. The following sectors were included in the scale as items: Accommodation; Food and Beverage; Cultural Attractions; Natural Attractions;

Recreation Operators; Entertainment organizations; Tourism Intermediaries; Transportation; Tourism Media; Local Tourism or Business Organizations or Associations; Government bodies; Tourism-related academic institutions; Local Community/Resident Organizations.

Individual's social network diversity in business context was measured by calculating the number of identified tourism-related sectors in which the respondent knew at least some acquaintances working at managerial level. This index ranged from 0 to 14 as there were 14 sectors in the scale that were identified as tourism-related sectors in Charleston's tourism industry.

Perceived Performance

The measures for organization performance used in this study were adapted from Delaney and Huselid's study (1996). They create two measures of organization performance from the items contained in the National Organization Survey (NOS), which is a special module of the General Social Survey (GSS) conducted in 1991. The NOS "surveyed a representative sample of U.S. work establishments about their structure, context, and personnel practices" (Kalleberg, Knoke, Marsden, and Spaeth, 1994: 860). Instead of collecting quantified objective data, the performance measures in the NOS are relative or benchmarked, as they ask the respondents to report on their perception of the organization's performance comparing to that of their direct competitors in the industry. Although using perceptual performance measures may increase the risk of measurement error and common method bias, research had found that managerial perceptions of performance are positively correlated with objective measures of organization

performance to a moderate to strong degree (e.g. Dess and Roinson, 1984; Dollinger and Golder, 1992; Powell, 1992).

Two dimensions of the organization performance were measured in this 11-item 7-point Likert type scale ranging from 1 "*Much Worse*" to 7 "*Much Better*" (see table 4.4). The first dimension consists of seven items and measures the respondents' perceived organizational performance of their organizations comparing to their direct competitors over the past three years. Issues assessed in this measure include product quality, new product development, human resource management, and customer satisfaction. The second dimension of measures concerns the market performance of tourism-related businesses. For the market performance measure, the respondents were asked to compare their organizations' performance over the past three years to the direct competitors with respect to issues like marketing, sales growth, profitability and market share. Together these variables are believed to provide a broad assessment of an organization's perceived performance.

Table 4.4 Items on the Perceived Organizational Performance Scale

Organizational Performance
1. Quality of products, services, or programs
2. Development of new products, services, or programs
3. Ability to attract essential employees
4. Ability to retain essential employees
5. Satisfaction of customers or clients
6. Relations between management and other employees
7. Relations among employees in general
Market Performance
8. Marketing
9. Growth in sales
10. Profitability
12. Market share

* Measures on a scale of 1= Much worse to 7= Much better.

Perceived Environmental Turbulences

Industries often are typified by their instability, and all industry experience turbulent environments of varying degree (Calantone, Garcia, & Dröge, 2003). Glazer and Weiss (1993) define environmental turbulence as sharp discontinuities in demand and growth rates in dynamic and volatile conditions. It is believed that turbulent environments have high level of interperiod change that creates uncertainty and unpredictability (Dess & Beard, 1984). Chakravarthy (1997) suggest that in turbulent environments, competitive advantages are temporary and unstable. Industries with low barriers to entry or exit may continuously change their structures of competition. Mainly

comprised of small and medium-sized enterprises, tourism industry is featured with its high susceptibility to the socio-economic situations, and is believed to be sensitive to the market turbulence.

Recently, network theory has moved beyond the organizational level to the environmental level of analysis. From the perspective of network theory, the understanding of environment influence should go beyond identifying resource and process dependencies, and should focuses on the characteristics and determinants of the relationships involved and the conditions in which those relations meet their stated objectives (O'Neil, 2009)

In order to understand the relationship between environmental influences and networking behaviors of tourism organizations, the perceived market turbulence of tourism organizations were examined in this study. Market turbulence was measured using six measures (see table 4.5). Ma, et al. (2009) examined the intensity of market competition, Jaworski and Kohli (1993) looked at the composition of customers over time; Li and Calanton (1998) looked at market share over time; and Miller and Friesen (1982) measured the ease of forecasting customers' demands and tastes. Another two measures was also included, which measured the variance of sales during the past three years, as well as the recent economic downturn's impact on market sales. The instrument had 6 items measured on a 7-point Likert-type scale ranging from 1 (Very Inaccurate) to 7 (Very Accurate).

Table 4.5 Items in the Perceived Market Turbulence Scale

1. The competition in my organization's industry/sector is intense
2. The market demand and customer tastes are difficult to forecast
3. In general, the market share of my primary business sector is stable among the same competitors
4. We cater to many of the same customers as in the past
5. Our business sales varied significantly in the past three years
6. The recent economic downturn significantly affect my business in a negative way

* Measures on a scale of 1= Very Inaccurate to 7= Very Accurate.

Control Variables

As discussed in Chapter three, research has recognized the homophily phenomenon in social settings: similar people tend to interact with each other. In social network research, similarity has been operationally defined on such socio-demographic dimensions as age, sex, education, prestige, social class, tenure, and occupation, etc. In order to examine the main effects of personality on individual's social network structure, individual's socio-demographic variables (i.e., age, gender, race, education, and years of local residence) was controlled in this study (see table 4.6). As this study focused on individual's networking in business context, it is reasonable to assume that individual's professional characteristics (i.e., organizational position/role, and professional experience) may also impact their social network structures in professional settings. Therefore, individual's professional characteristics were also controlled. Three variables

were controlled in the network study at organizational level. They are organization size, organization age, and organization's business sector.

Table 4.6 Control variables at individual and organizational levels

Control variables at individual Level
1. Age
2. Gender
3. Race
4. Education
5. Years of local residence
6. Organizational position
7. Years of professional experience
Control variables at organizational level
1. Organization size (i.e., number of employees)
2. Organization age (i.e., Years in current business field)
3. Business sector

* Education was measured on a scale of 1= high school or less, 2=some college/technical school, 3= college graduate, 4= master degree, 5= doctoral degree, and 6=professional degree.

* Organization position was measured on a scale of 1=employee, 2=department/division manager, 3=higher-level manager, 4=Owner/CEO/General Manager.

DATA ANALYSIS

In order to test the proposed hypotheses and to describe the sample of the study, the Predictive Analytics Software (PASW 17), UCINET, and Pajek were employed. This study adapted two main analytical procedures: statistical analysis and network analysis.

Two main types of statistical analysis - Multiple Regression and Analysis of Variance (ANOVA) - were employed. A series of multiple regression analyses were conducted to examine the relationships between network antecedents (e.g., personality, market turbulence, organizational characteristics), network structures (e.g., interpersonal network diversity, network tie strength, etc), and network outcomes (e.g. market performance, organizational performance, etc). The number of variables included in the regression model was not only determined by the conceptual models, but also affected by the number of cases that were available for analysis. Tabachnick and Fidell (2007) have provided simple rules of thumb for the required sample size for a substantial and meaningful multiple regression, which are $N \geq 50+8m$ (where m is the number of IVs) for testing the multiple correlation and $N \geq 104 + m$ for testing individual predictors.

The Analysis of Variance (ANOVA) provided a method for assessing whether the online and offline network structural measures were statistically different by organizational characteristics, for instance, the business sectors.

Network analysis techniques were mainly used to measure the structural characteristics of tourism Web sites in the hyperlink network and examine their networking patterns in cyberspace. The measures involved in this study included network density, network centrality, egocentric-network heterogeneity, network homophily, etc.

The data analysis strategies will be discussed in detail in the next chapters with specific research questions and hypothesis testing.

CHAPTER FIVE

DESCRIPTIVE FINDINGS FROM SURVEY DATA

This chapter is divided into two major parts. The first part is a brief description of the procedure used to examine and prepare the survey data for hypothesis testing, and the second part of this chapter details the profiles of the survey respondents and a profile of the respondents to the variables under study.

Data Screening

Prior to the data analysis for hypothesis testing, a series of data check were carried out mainly on the accuracy of data entry, missing values, and fit between the value distribution of variables and the assumption of multivariate analysis (Tabachnick & Fidell, 2001).

By the end of the data collection, 337 valid email invitations were sent. 161 surveys were returned completed or partially completed. The response rate calculated in this study adopts the concept of "maximum response rate" defined by the American Association for Public Opinion Research, which is: response rate = (complete response + partial response)/total number of the eligible sample. Therefore, the response rate for this survey study was 47.8%. Among all the responses, 20 cases were removed due to their excessive missing values. The total sample size left for the analysis was 141 respondents.

Missing value analysis was conducted using EQS 6.1. Results showed that 24.8% of the cases (n=35) had missing values, but none of the variables items had missing values exceeding 10%, which is usually deemed acceptable (Byrne, 2001: 288). The

pattern of missing values was found to be completely random. Given that over 5% of the cases had missing value, the expectation-maximization (EM) algorithm was used to impute the missing values in the scales measuring perceived business environment, organizational performance, and personality. Comparing with other traditional missing value treatments (e.g. listwise deletion, mean substitution, and regression substitution, etc.), the EM approach "…has the advantage of avoiding impossible matrices, avoiding over fitting and producing realistic estimates of variance" (Tabachnick & Fidell, 2001:63).

Univariate normality of the items was examined by calculating the skewness and kurtosis index for the variables. The skewness index is well within the -2 to +2 range, and is therefore not of concern. No item was found had unacceptable Kurtosis beyond the -3 to +3 range.

The multivariate normality and linearity between items were investigated by calculate the Mahalanobis distances of each case. No multivariate outliers were detected through the Mahalanobis distance metric with $p<0.001$ (with correspondes to Mahalanobis distance<116.1), and no significant reason for concern was found.

Description of the Sample

Descriptive Statistics on Organizational Characteristics

The business sector of each responding tourism-related organizations was first examined (see table 5.1). Among the 141 usable responses, 138 respondents provided information on their affiliations by sectors. Businesses and organizations from four sectors formed the majority of the respondents. Over a quarter of the respondents were

from *Accommodation* sectors (n=41, 29.7%), another quarter of respondents were *Tourism Intermediaries* (n=34, 24.6%). *Food and Beverage* businesses made up 10.9% (n=15) of the respondents, followed by *Entertainment Organizations* (n=19, 13.8%). In addition, *Cultural Attractions* (n=10, 7.1%) and *Recreation Operators* (n=8, 5.8%) also accounted for a substantial proportion of the respondents. Table 5.1 also summarizes the sector distributions of the entire sample.

A Chi-square goodness-of-fit test was conducted to determine if the percent of sector distribution were similar between the entire sample population and the respondents. The null hypothesis was that there was no significant different between percentages of sector distribution in the sample population and the respondents. The equation (as adapted from Sheskin, 2007) that was used to determine chi-square goodness-of-fit was written as,

$$X^2 = (\text{observed value} - \text{expected value})^2 / (\text{expected value})$$

Where observed value represent the percent of sector distribution in the respondents, and expected values represents percent of sector distribution in the sample population.

The last column of table 5.1 presents the Chi-square goodness-of-fit index for the distribution percentage of each sector. Comparing the values to the chi-square critical value with 1 degree of freedom at the 0.05 alpha (i.e., 3.841) in Tabachnick & Fidell (2006), it was concluded that none of the tests was significant. Therefore, the null hypotheses were accepted and it was claimed that no significant difference existed between percentage of sector distribution of the sample population and the respondents. This indicates a good fit.

Table 5.1 Sector Distribution of Respondents

Sector	Sample		Respondents		Chi-square Values
	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)	
Accommodation	85	25.2	41	29.7	0.8
Food and Beverage	46	13.6	15	10.9	0.54
Cultural Attractions	27	8.0	10	7.1	0.1
Recreation Operators	17	5.0	8	5.8	0.13
Entertainment Organizations	47	13.9	19	13.8	0
Tourism Intermediaries	80	23.7	34	24.6	0.03
Transportation	9	2.7	4	2.9	0.01
Tourism Media	2	0.6	1	.7	0.02
Tourism Association	3	0.9	2	1.4	0.28
Local Business Organizations	2	0.6	0	0	0.6
Government Bodies	1	0.3	1	.7	0.53
Academic Institutions	2	0.6	0	0	0.6
Other Services	16	4.7	3	2.2	1.33
Total	337	100	138	100	

The number of respondents by region of business location is listed in Table 5.2. 88 respondents were from businesses or organizations located in Downtown Charleston, and accounted for 63.8% of the total respondents. Respondents representing tourism businesses or organizations in Mountain Pleasant formed 15.2% (n=21). Respondents from North Charleston made up of 8.0% (n=11) of the total respondents. For those locations that have less than five respondents were combined into one single category –

Other Locations, which accounted for 13% of the total respondents. The geographic distribution of the entire sample is also presented in table 5.2.

The same Chi-square goodness-of-fit test was conducted to determine if the percent of geographic distribution were similar between the entire sample population and the respondents. The null hypothesis was that there was no significant different between percentages of geographic distribution in the sample population and the respondents. The last column of table 5.2 presents the Chi-square goodness-of-fit index for the distribution percentage of each geographic location. Comparing the values to the chi-square critical value with 1 degree of freedom at the 0.05 alpha (i.e., 3.841) in Tabachnick & Fidell (2006), it was concluded that none of the tests was significant. Therefore, the null hypotheses were accepted and it was claimed that no significant difference existed between percentage of geographic distribution of the sample population and the respondents. This indicates a good fit.

Table 5.2 Number of Respondents by Geographic Location

Geographic Location	Sample		Respondent		Chi-square Values
	Frequency	Percent (%)	Frequency	Percent (%)	
Downtown Charleston	221	65.6	88	63.8	0.05
Mt. Pleasant	49	14.5	21	15.2	0.03
North Charleston	31	9.2	11	8.0	0.16
Other location (<5)	36	10.6	18	13	0.54
Total	337	100	138	100.0	

The responding organization's size was examined by asking about the number of their employees (see table 5.3). Over 60% of the organizations had less than 30 employees. The majority of the respondents were affiliated with small-sized tourism organizations with less than 10 employees (41%). Over twelve percent (12.2%, n=17) of the organizations had 11-20 employees, and 10.1% (n=14) had 21-30 employees. It is interesting to notice that organizations with 51-100 employees also accounted for a percentage of 15.8%.

Table 5.3 Number of Employees

Employees	Frequency	Percent (%)
1-10	57	41.0
11-20	17	12.2
21-30	14	10.1
31-40	9	6.5
41-50	6	4.3
51-100	22	15.8
101-150	4	2.9
151-200	4	2.9
201-250	2	1.4
251-500	2	1.4
>500	2	1.4
Total	139	100.0

As to the organization age (see table 5.4), it was found that over half of the respondents were from relatively young tourism organizations that were less than ten

years old. Thirteen percent (n=18) of the organizations were established during 1995-1999, and 10.1% (n=9) in1990-1994. Organizations with over twenty years' history accounted for almost one fifth of the total respondents.

Table 5.4 Distribution of Organization Age

Year of Establishment	Frequency	Percent (%)
2005-2009	40	29.0
2000-2004	30	21.7
1995-1999	18	13.0
1990-1994	9	6.5
1985-1989	14	10.1
1980-1984	9	6.5
Before 1980	18	13.0
Total	138	100.0

The respondents were also asked about how many years their organizations had been an investor of the CACVB Travel Council (see table 5.5). The results show that, by the end of the data collection, almost half (n=63, 46.7%) of the responding organizations had less than five years' investing history in the CACVB Travel Council. About 30% of the organizations (n=40, 29.6%) had been in the CACVB Travel Council for six to tenyears. About one quarter of the respondents reported that their organizations had been a Travel Council Investor for over ten years.

Table 5.5 Years of CACVB Travel Council Investor

Years of Membership	Frequency	Percent (%)
1-5 years	63	46.7
6-10 years	40	29.6
11-15 years	13	9.6
More than 15 years	19	14.1
Total	135	100.0

Descriptive Statistics on the Individual Characteristics of Respondents

The respondents of the online survey consisted of the representatives of the constituent organizations in the CACVB Travel Council. The socio-demographic characteristics of the respondents are summarized in table 5.6. Over half of the respondents were female (n=69, 57.5%), and the remainder were male (n=51, 42.5%). Table 5.6 shows the frequency distribution of the respondents by their gender. In terms of race, most of the respondents were white (n=113, 96.6%), only four respondents (3.4%) were identified as non-white. There was the possibility that the non-white races were under-estimated in this sample. About one quarter (n=28, 23.3%) of the respondents fell in the age category of 30-39, and over one quarter (n=31, 25.8%) in the age category of 40-49, followed by the category of 50-59 (n=37, 30.8%) and 60-69 (n=13, 10.8%). With respect to education level, over sixty percent of the respondents had college degree (n=74, 62.7%) and 13.6% had master degree. About seventeen percent (16.9%) of the respondents had some college education. The remainders of the respondents comprised of

people with high school education (n=3, 2.5%) and professional degree (4, 3.4%). As to organizational position, most of the respondents were at least at department/division manager level. As tourism industry is mainly comprised of small-sized enterprises, 38.1% of the respondents were owners of tourism businesses. 30.5% of the respondents were department managers, followed by the general manager (n=24, 20.3%).Three respondents were identified as employee (2.5%) and one as board of directors member (0.8%).

Table 5.6 Frequency Distribution for Socio-demographics

Variable	Frequency (n)	Percent (%)
Gender		
Female	69	57.5
Male	51	42.5
	120	100
Race		
White	113	96.6
Non-white	4	3.4
	117	100
Age		
20-29	11	9.2
30-39	28	23.3
40-49	31	25.8
50-59	37	30.8
60-69	13	10.8
	120	100
Education		
High school or less	3	2.5
Some college education	20	16.9
College graduate	74	62.7
Master degree	16	13.6
Doctoral degree	1	.8
Professional degree	4	3.4
	118	100
Organizational Position		
Owner	45	38.1
CEO	5	4.2
General Manager	24	20.3
Higher-level Manager (e.g., CFO, COO)	4	3.4
Departmental/Division Head (Sales, PR)	36	30.5
Employee	3	2.5
Board of Directors Member	1	.8
	118	100

Five items were used to examine the respondents' professional experience and characteristics in Charleston's tourism industry. These items included 1) working years in Charleston Area; 2) working years in current business field; 3) working years in current organization; 4) working years in current organizational position; and 5) years in the CACVB Travel Council. The mean and standard deviation of each measure were calculated. The responses for each measure were also categorized into six groups as 1) 1-5 years, 2) 6-10 years, 3) 11-15 years, 4) 16-20 years, 5) 21-25 years, and 6) > 25 years.

As presented in table 5.7, on average, the respondents had over 15 years' working history in Charleston. About one quarter (n=30, 25.2%) of the respondents had worked in Charleston for 6-10 years, followed by the category of 11-15 years (n=28, 23.5%). About seventeen percent (n=20, 16.8%) of the respondents had less than five years' local professional experience, while those with over fifteen years' local working experiences accounted for about one third of the total respondents.

Table 5.7 Working Years in Charleston Area

Years	Frequency	Percent (%)
1-5 years	20	16.8
6-10 years	30	25.2
11-15 years	28	23.5
16-20 years	13	10.9
21-25 years	6	5.0
More than 25 years	22	18.5
Total	119	100
Mean (SD)	15.4 (11)	

The distribution of respondents' working years in their current business field (see table 5.8) presents a similar pattern to that of their local working experience. The respondents' average working experience in their current business field was 15.6 years. The category of 11-15 years made up the largest portion of the entire sample (n=25, 21.2%). About eighteen (n=21, 17.8%) of the respondents had less than five years' experience in their current field and 19.5% for six to ten years. Over 40% (n=16) of the respondents reported that they had worked in their current business field for over fifteen years.

Table 5.8 Working Years in Current Business Field

Years	Frequency	Percent (%)
1-5 years	21	17.8
6-10 years	23	19.5
11-15 years	25	21.2
16-20 years	15	12.7
21-25 years	21	17.8
More than 25 years	13	11.0
Total	118	100
Mean (SD)	15.6 (9.5)	

The distributions of the respondents' working years in current organization presented a different pattern from that of their working years in current business field (see table 5.9). The majority (n=65, 54.6%) of the respondents had a relative short history

(i.e., less than 5 years) with their current organization. Over one quarter (n=32, 26.9%) of the respondents had worked in their current organizations for six to ten years, and less than one fifth (18.6%) had worked in current organizations for over ten years.

Table 5.9 Working Years in Current Organization

Years	Frequency	Percent (%)
1-5 years	65	54.6
6-10 years	32	26.9
11-15 years	9	7.6
16-20 years	5	4.2
21-25 years	4	3.4
More than 25 years	4	3.4
Total	119	100
Mean (SD)	7.2 (7.2)	

As to the respondents' working years in their current positions, the results suggest that it corresponds to the distribution of respondents' working years in current organizations (see table 5.10). On average, the respondents had 6.2 years' experience in their current organizational position. Over 60% of the respondent had been in the same positions for one to five years, and over 20% for six to ten years. Respondents who had been their current positions for over ten years accounted for only 14.2% of the sample.

Table 5.10 Working Years in Current Position

Years	Frequency	Percent (%)
1-5 years	76	63.9
6-10 years	25	21.0
11-15 years	7	5.9
16-20 years	4	3.4
21-25 years	5	4.2
More than 25 years	2	1.7
Total	119	100
Mean (SD)	6.2 (6.3)	

On average, the responding constituent organization with the CACVB Travel Council for 4.7 years (see table 5.11). The majority of them were relatively new (i.e., 1-5 years) investors in the CACVB Travel Council (n=85, 72.6%). 17.1% (n=20) of the respondents indicated that they had been Travel Council Investors for 6 to 10 years, and only about 10% had been involved in the Travel Council for more than 10 years.

Table 5.11 Years in CACVB Travel Council

Years	Frequency	Percent (%)
1-5 years	85	72.6
6-10 years	20	17.1
11-15 years	7	6.0
16-20 years	4	3.4
21-25 years	1	0.9
More than 25 years	0	0
Total	117	100
Mean (SD)	4.7 (4.7)	

Testing for Non-response Bias

One major concern with survey research is about the representativeness of the sample. Along with the coverage and measurement effect, non-response effect is one of the errors that occur when there is a systematic difference between the answers from respondents and non-respondents, while the non-respondents are excluded as a non-random subset of the population (Groves, 1989). There are three major methods that have been widely used in literature for non-response test (Armstrong & Overton, 1977). The first method is to compare the composition of respondents and non-respondents based on known values, for example, demographic or publicly available characteristics like gender, business sector, and geographic business location. The second way is to conduct a wave analysis by comparing the answers between early and late respondents (Armstrong &

Overton, 1977). The third approach involves a condensed survey with a sample of the non-respondents. The last method is believed to be most rigorous, but it is also most expensive and time-consuming.

In this study, two approaches are employed to test the non-response bias: (1) a demographic comparison between the respondents and non-respondents; (2) a wave analysis between the early and late respondents. A detailed discussion is provided in the next two subsections.

Respondent and Non-respondent Sector Comparison

The first method compared the sector distribution between the respondents and non-respondents (see table 5.12). All the respondents and non-respondents were classified into thirteen tourism-related sectors. A chi-square test of difference between the two distributions is non-significant at p=.05 confidential level, which indicates that no difference was found between the two groups in business sector affiliation.

Table 5.12 Sector Profile of Respondents and Non-respondents

Sector	Respondents		Non-respondents	
	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
Accommodation	41	29.7	44	22.1
Food and Beverage	15	10.9	31	15.6
Cultural Attractions	10	7.1	17	8.5
Recreation Operators	8	5.8	9	4.5
Entertainment Organizations	19	13.8	28	14.1
Tourism Intermediaries	34	24.6	46	23.1
Transportation	4	2.9	5	2.5
Tourism Media	1	.7	1	.5
Tourism Association	2	1.4	1	.5
Local Business Organizations	0	0	2	1
Government Bodies	1	.7	0	0
Academic Institutions	0	0	2	1
Other Services	3	2.2	13	6.5
Total	138	100	199	100

Chi-square =12.159, df=12, p=.433

Wave Analysis

The wave analysis is based on the assumption that late respondents are more likely to be similar to the non-respondents (Dalecki, Whitehead, & Blomquist, 1993). Early and late respondents were differentiated based on whether an email reminder was needed before their completion of the survey. The respondents were split into two groups, one group (n=73, 51.8%) consists of those who finished the survey before the first email

reminder was sent out, and the other group (n=68, 48.2%) was comprised of those who didn't complete questionnaire until they received at least on email reminder. Researchers argue that if they cannot identify any significant systematic difference between early and late respondents, there is no bias caused by non-response.

Fourteen items were selected for the wave analysis. A series of Chi-square tests were run on the socio-demographic variables (i.e., gender, race, age, education, years of CACVB membership, and organizational position), and a series of t-test were run on the personality traits, perceived performance as well as perceived market turbulence (see table 5.13). No significant difference was found between the two groups on any of the fourteen variables.

Table 5.13 Comparison of the early and late respondents

Variable	Early Wave	Late Wave	Chi-square	P-value
Gender (% of male)	.46 (.502)	.38 (.49)	.78 (1)	--
Race (% of White)	.97 (.18)	.96 (.19)	.04 (1)	--
Age	4 (1.12)	4.24 (1.20)	8.17 (4)	--
Education	3.12 (.82)	2.92 (.92)	3.90 (5)	--
Years of CACVB Membership	9.90 (6.49)	8.50 (5.92)	10 (17)	--
Organizational Position	3.16 (1.78)	2.7 (1.79)	13.75 (6)	--
Personality				
Extraversion	5.38 (1.35)	5.23 (1.21)	--	.168
Agreeableness	5.91 (.74)	5.76 (.99)	--	.246
Conscientiousness	5.88 (.95)	5.55 (.83)	--	.472
Neuroticism	3.03 (1.04)	3.24 (1.11)	--	.99
Openness	5.36 (1.11)	5.42 (1.07)	--	.45
Perceived Performance				
Mrkt. Performance	5.19 (1.25)	4.54 (1.29)	--	.667
Org. Performance	5.81 (.83)	5.61 (.86)	--	.215
Market Turbulence	5.02 (1.39)	5.32 (1.08)	--	.171

Reliability of Measurement Scales

The scales used in this study were examined for their reliability before being employed for testing the hypotheses. Cronbach's alpha is the most commonly used measure of reliability for a set of two or more construct indicators. Ranging from 0 to 1, a higher value of Cronbach's alpha indicates a better reliability of the scale (Haire et al.,

1998). The reliability coefficients along with the dimensions of the independent variables used for this study are reported in table 5.14.

A modification was made on the perceived market turbulence scale. The results of Cronbach's alpha test found the original six-item perceived market turbulence scale had a relatively low reliability level (Cronbach's alpha = 0.435). To increase the reliability level, two items were removed from the original scale. The new perceived market turbulence scale had 4 items with an reliability level (Cronbach's alpha = 0.728)

Table 5.14 Reliability Coefficients of Scales Used in this Study

Variables	N	Range	Mean	SD	N. of Items	Cronbach's α
Personality						
Extraversion	119	1.25-7	5.32	1.29	4	0.870
Agreeableness	119	2.25-7	5.84	0.87	4	0.732
Conscientiousness	119	3-7	5.74	0.91	4	0.715
Neuroticism	119	1-6.5	3.12	1.08	4	0.707
Openness	119	2.75-7	5.38	1.08	4	0.770
Perceived Performance						
Market Performance	137	2-7	4.88	1.31	4	0.832
Organizational Performance	137	4-7	5.71	0.87	7	0.837
Perceived Market Turbulence	140	1-7	5.16	1.26	4	0.728

CHAPTER SIX

HYPOTHESES TESTING FOR THE SURVEY STUDY

This chapter tests the null hypotheses stated in Chapter Three. The research question and corresponding null hypotheses were restated and then a description of how each of them was tested and results are provided.

Personality and Social Network Structure

The following analyses examined the relationships between the big five personality traits and individuals' social network structures. The first research question and null hypotheses stated:

Research Question 1a: How does boundary-spanning personnel's personality affect the compositional diversity of their social networks in tourism business environment?

H1a: *The boundary-spanning personnel's personality (i.e., extraversion, agreeableness, conscientiousness, neuroticism, and openness) does not affect the compositional diversity of their social networks in tourism business environment.*

H1a-1: Extraversion is not significantly related to the compositional diversity of individual's social network in tourism business environment.

H1 a-2: Agreeableness is not significantly related to the compositional diversity of individual's social network in tourism business environment.

H1 a-3: Conscientiousness is not significantly related to the compositional diversity of individual's social network in tourism business environment.

H1 a-4: Neuroticism is not significantly related to the compositional diversity of individual's social network in tourism business environment.

H1 a-5: Openness is not significantly related to the compositional diversity of individual's social network in tourism business environment.

Individual's social network diversity in business context was measured by calculating the number of identified tourism-related sectors in which the respondent knew at least some acquaintances working at managerial level. This index ranged from 0 to 14 as there were 14 sectors in the scale that were identified as tourism-related sectors in Charleston's tourism industry. The descriptive statistics of the individual social network diversity shows that on average, the respondents knew at least some acquaintance from about 11 (SD=2.76) different sectors in Charleston's tourism industry. The frequencies of the respondents' social network diversity are presented in Table 6.1.

Table 6.1 Frequencies of Individual's Social Network Diversity Index

N. of Sectors	Frequency	Percent (%)
3	2	1.4
5	5	3.6
6	3	2.2
7	4	2.9
8	7	5.1
9	10	7.2
10	15	10.9
11	12	8.7
12	16	11.6
13	18	13.0
14	46	33.3
Total	138	100.0
Mean (SD)	11.41 (2.76)	

Multiple regression analysis was used to test Hypotheses H1a1-5. Since the analysis focused on the effect of personality on individual's social network diversity, the possible influences of individual's demographic characteristics (i.e., gender, age, and education), as well as years of professional experience were all controlled. Table 6.2 shows the mean, Standard Deviation, and the correlation matrix of all the variables (both IVs and DV) used in the regression analysis.

Table 6.2 Mean, Standard Deviation and Correlation Matrix of Variables (n=119)

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9
1. Ntwk. Divers.	11.4	2.76									
2. Sex	.43	.49	.12								
3. Age	4.11	1.16	-.1	.04							
4. Edu.	3.03	.87	.18	-.01	-.02						
5. Prof. Experience	15.58	9.51	.19*	.12	.48**	-.02					
6. Extraversion	5.32	1.29	.30**	-.09	-.02	.06	-.01				
7. Agreeableness	5.73	.81	.13	.02	-.03	-.3**	.004	-.01			
8. Conscientious.	5.65	.93	.01	-.17	.07	-.09	.01	.15	.4**		
9. Neuroticism	2.98	.99	-.10	-.11	.14	.02	.11	-.21*	-.08	-.23*	
10. Openness	5.29	1.05	.36**	.14	.06	.09	.02	.39**	.11	.17	-.2*

*. P< 0.05, **. P< 0.01

Three regression models were constructed for this analysis (see table 6.3). Model one was the baseline model for this analysis, as it included all the control variables. This baseline model was significant ($p<0.01$) and explained 13.7% of the total variance. Age ($B= -0.609$, $p<0.01$) was negatively related to the social network diversity, while education level ($B=0.642$, $P<0.05$) and years of professional experience ($B=0.086$, $P<0.01$) were positively related to individual's social network diversity.

The Big Five personality traits were exclusively included in model two, and the results for the model was significant ($p< .001$) and 12.1% of the variance was explained. In this model, *Extraversion* ($B = 0.463$, $p<0.05$) was found significantly related to individual's social network diversity in business context. Individual with higher scores on *Extraversion* tended to have a more diverse social network in tourism business context.

Model three added the main effects of personality into the baseline model (i.e., Model one). This full model was also found statistically significant ($p<0.001$) and explained 25.9% of the total variance. The control variables of age, education, and years of professional experience were still significant. As to the five personality traits, *Extraversion* ($B= 0.445$, $p<0.05$) was found significant in the full model. With one unit increase in *Extraversion*, the individual social network diversity index increased 0.445 units.

The results of this analysis rejected the null sub-hypothesis that there was no relationship between *Extraversion* and individual social network diversity (H1a-1). However, this analysis failed to reject the other four sub-hypotheses stating that there was no relationship between *Agreeableness* & individual social network diversity (H1a-2), *Conscientiousness* & individual social network diversity (H1a-3), *Neuroticism* & individual social network diversity (H1a-4), as well as *Openness* & individual social network diversity (H1a-5). Among the five basic personality traits, *Extraversion* was related to individual's social network diversity in tourism business context. Therefore, it is concluded that the boundary-spanning personnel's personality does affect the compositional diversity of their social networks in tourism business environment.

Table 6.3 Results of Multiple Regression Analysis on Social Network Diversity

Variables	Model 1	Model 2	Model 3
Constant	10.576*** (1.21)	7.981* (2.34)	5.44* (2.54)
Sex	0.524 (.48)		0.399 (0.49)
Age	-0.609** (0.23)		-0.637** (0.23)
Education	0.642* (0.28)		0.655** (0.27)
Prof. Experience	0.086** (0.028)		0.089*** (0.03)
Extraversion		0.463* (0.2)	0.445* (0.19)
Agreeableness		0.14 (0.29)	0.279 (0.29)
Conscientiousness		-0.172 (0.27)	0.091 (0.27)
Neuroticism		-0.209 (0.23)	-0.127 (0.22)
Openness		0.37 (0.24)	0.394 (0.23)
R^2	0.137	0.121	0.259
Adjusted R^2	0.106	0.082	0.196
F value (df)	4.398** (4)	3.098* (5)	4.118*** (9)

*. P< 0.05; **. P< 0.01; ***. P<0.001

Research Question 1b: How does boundary-spanning personnel's personality affect the strength of their social network ties in tourism business environment?

H1b: *The boundary-spanning personnel's personality (i.e., extraversion, agreeableness, conscientiousness, neuroticism, and openness) does not affect the strength of their social network ties in tourism business environment.*

H1b-1: Extraversion is not significantly related to the strength of individual's social network ties in tourism business environment

H1 b-2: Agreeableness is not significantly related to the strength of individual's social network ties in tourism business environment.

H1 b-3: Conscientiousness is not significantly related to the strength of individual's social network ties in tourism business environment.

H1 b-4: Neuroticism is not significantly related to the strength of individual's social network ties in tourism business environment.

H1 b-5: Openness is not significantly related to the strength of individual's social network ties in tourism business environment.

Individual's social network tie strength in business context was measured by calculating the average tie strength of individual's social connections in all the 14 identified tourism-related sectors. This average tie strength index ranged from 1 (all the social connections that individuals had in relevant sectors were only at acquaintance level) to 3 (the social connections that individuals had in relevant sectors all included both acquaintance and friend/relatives). The descriptive statistics of the individual social

network tie strength showed that on average, the social connections that the respondents had in relevant tourism-related sectors were close to "friend/relative" level (M=1.94, SD=0.627).

Multiple regression analysis was used to test Hypotheses H1b1-5. Since the analysis focused on the effect of personality on individual's social network tie strength, the possible influences of individual's demographic characteristics (i.e., sex, age, and education), and years of professional experience were all controlled. Table 6.4 shows the mean, Standard Deviation, and the correlation matrix of all the variables (both IVs and DV) used in this regression analysis.

Table 6.4 Mean, Standard Deviation and Correlation Matrix of Variables (n=119)

Variables	Mean	SD	1	2	3	4	5	6	7	8	9
1. Ntwk. Tie Stren.	1.95	.63									
2. Sex	.43	.49	.15								
3. Age	4.11	1.16	-.05	.04							
4. Edu.	3.03	.87	.07	-.01	-.02						
5. Prof. Experience	15.58	9.51	.02	.12	.48**	-.02					
6. Extraversion	5.32	1.29	.24**	-.09	-.02	.06	-.01				
7. Agreeableness	5.73	.81	.23*	.02	-.03	-.28**	.004	-.01			
8. Conscientious.	5.65	.93	.01	-.17	.07	-.09	.01	.15	.41**		
9. Neuroticism	2.985	.99	-.02	-.11	.14	.02	.11	-.21*	-.08	-.23*	
10. Openness	5.295	1.1	.29**	.14	.06	.09	.02	.39**	.11	.17	-.2*

*. P< 0.05; **. P< 0.01; ***. P<0.001

Three regression models were constructed for the entire analysis (see table 6.5). Model one was the baseline model for this analysis, as it included all the control variables. This baseline model was not significant. The Big Five personality traits were exclusively included in model two, and results showed that the model was significant ($p < .01$) and 17.1% of the variance was explained. In this model, *Extraversion* ($B = 0.093$, $p<0.05$), *Agreeableness* ($B=0.021$, $p<0.01$) and *Openness* ($B = 0.128$, $p<0.05$) were found significantly related with individual's social network tie strength in business context. Individual with higher scores on *Extraversion, Agreeableness* and *Openness* tended to have stronger social network ties in tourism business context. Model three added the main effects of personality into the baseline model (i.e., Model one). This full model was also found statistically significant ($p<0.05$) and explained 28.7% of the total variance. None of the control variables were significant. As to the five personality traits, Only *Agreeableness* ($B= 0.226$, $p<0.01$) was found to be significant in the full model. With one unit increase in *Agreeableness*, the individual social network strength index increased 0.226 units.

The results of this analysis rejected the null sub-hypotheses that there was no relationship between *Agreeableness* & individual social network tie strength (H1b-2). However, this analysis failed to reject the other four sub-hypotheses stating that there was no relationship between *Extraversion* & individual social network tie strength (H1b-1), *Conscientiousness* & individual social network tie strength (H1b-3), *Neuroticism* & individual social network tie strength (H1b-4), as well as *Openness* & individual social network tie strength (H1b-5). Among the five basic personality traits, *Agreeableness* was

related to individual's social network diversity in tourism business context. Therefore, it is concluded that the boundary-spanning personnel's personality does affect the strength of their social network ties in tourism business environment.

Table 6.5 Results of OLS Regression Analysis on Social Network Tie Strength

Variables	Model 1	Model 2	Model 3
Constant	1.828*** (0.3)	0.575* (2.34)	0.351* (0.63)
Sex	0.168 (.12)		0.198 (0.12)
Age	-0.18 (0.06)		-0.043 (0.06)
Education	0.05 (0.07)		0.045 (0.07)
Prof. Experience	0.001 (0.007)		0.002 (0.007)
Extraversion		0.093 (0.05)	0.083 (0.05)
Agreeableness		0.21** (0.07)	0.226** (0.07)
Conscientiousness		-0.109 (0.06)	-0.05 (0.07)
Neuroticism		0.027 (0.06)	0.025 (0.06)
Openness		0.128 (0.06)	0.085 (0.06)
R^2	0.023	0.171	0.287
Adjusted R^2	-0.012	0.134	0.125
F value (df)	0.65 (4)	4.646 ** (5)	1.766* (21)

*. P< 0.05; **. P< 0.01; ***. P<0.001

Interorganizational Network and Performance

The following analyses examined the relationships between the interorganizational network structure and organization performance. The research question and null hypotheses stated:

Research Question 2: How do tourism organization's interorganizational networks affect their performance?

H2a: The compositional diversity of interorganizational network is not significantly related to organization's market performance.

H2b: The compositional diversity of interorganizational network is not significantly related to organization's organizational performance.

H2c: The tie strength of interorganizational network is not significantly related to organization's market performance.

H2d: The tie strength of interorganizational network is not significantly related to organization's organizational performance.

For hypotheses H2a and H2b, multiple regression analysis was used to test the main effects of interorganizational network diversity and tie strength on organization's market performance. The possible influences of organization's organizational characteristics (i.e., size, age, business sector) were all controlled. The mean, Standard Deviation, and the correlation matrix of all the variables (both IVs and DV) used in this regression analysis can be found in Table 6.6.

Table 6.6 Mean, Standard Deviation and Correlation Matrix of Variables (n=137)

	Mean	SD	1	2	3	4	5	6	7	8
1 Mkt Permf.	4.98	1.31								
2 Org. Permf.	5.72	.86	.49**							
3 Mkt. Turb.	5.18	1.27	-.31**	-.1						
4 IntPsn. Ntwk Dvsty	11.4	2.75	.31**	.23**	-.13					
5 IntPsn. Tie Stregth	1.93	.62	.16	.19*	-.06	.53**				
6 IntOrg. Ntwk Dvsty.	11.33	3.11	.39**	.17	-.2*	.75**	.47**			
7 IntOrg. Tie Stregth	1.37	.32	.14	.09	.04	.31**	.29**	.3**		
8 Org. Size	3.26	2.59	.12	-.07	.05	.12	.12	.29**	.27**	
9 Org. Age	15.17	10.17	.03	-.04	.28**	-.02	-.06	.16	.13	.5**

*. P< 0.05; **. P< 0.01; ***. P<0.001

Four regression models were constructed for this analysis (see table 6.7). Model one included only the controlled organizational characteristic variables. The model was not significant and none of the organizational characteristic variables was significantly related to organization's market performance. Model two examined the effects of interorganizational network diversity on market performance. The model was significant ($p< 0.01$) with 26.0% of the total variance explained. In this model, interorganizational network diversity ($B= 0.166$, $p< 0.001$) was found significantly related with market performance. With one unit increase in its interorganizational network diversity, organization's market performance would increase 0.166 units. Model three tested the effects of interorganizational network tie strength on market

performance and the model was not significant. Model four incorporated both the interorganizational network diversity and tie strength, and the result supported the findings from model two and three.

The results of this analysis rejected the null hypothesis that Interorganizational network diversity is not significantly related to organization's market performance (H2a). However, this analysis failed to reject the other hypothesis stating that Interorganizational network tie strength is not significantly related to organization's market performance (H2b). It was concluded that it was the diversity, other than the tie strength, of organization's business network that were related to organization's market performance.

Table 6.7 Regression Models on Interorganizational Network Structure and Market Performance

Variables	Model 1	Model 2	Model 3	Model 4
Constant	4.351***	2.925***	3.876***	2.749**
	(.56)	(.60)	(.846)	(.847)
Org. size	.137	.068	.040	.015
	(.06)	(.06)	(.074)	(.070)
Org. Age	-.015	-.016	-.009	-.009
	(.02)	(.02)	(.018)	(.017)
Accommodation	-.034	-.152	.062	-.203
	(.58)	(.55)	(.665)	(.626)
Food & Bevg.	.153	.025	.216	-.169
	(.64)	(.62)	(.745)	(.704)
Attraction	.872	.480	.658	.205
	(.75)	(.72)	(.881)	(.833)
Recreation	.956	1.489	1.036	1.589
	(.71)	(.67)	(.852)	(.811)
Entertainment	.252	.081	.173	.122
	(.62)	(.59)	(.695)	(.650)
T. Intermediaries	.473	.315	.605	.399
	(.59)	(.55)	(.663)	(.622)
Transportation	1.086	1.168	.999	1.086
	(.85)	(.87)	(.997)	(.933)
T. Media	-.061	-.591	-.425	-.762
	(1.45)	(1.35)	(1.550)	(1.453)
T. Association	.896	.225	.670	.045
	(1.1)	(1.03)	(1.175)	(1.111)
Government	-1.631	-1.419	-1.176	-1.194
	(1.49)	(1.39)	(1.562)	(1.461)
IntOrg. Ntwk Dvsty.		.166***		.177***
		(.03)		(.048)
IntOrg. Tie Stregth			.575	.128
			(.465)	(.451)
R^2	.083	.26	.089	.212
Adjusted R^2	-.007	.168	-.046	.086
F value (df)	.923	2.838**	.661	2.633*
	(12)	(13)	(13)	(14)

*. P< 0.05; **. P< 0.01; ***. P<0.001

For hypotheses H2c and H2d, multiple regression analysis was run to examine the main effects of Interorganizational network diversity and tie strength on organization's organizational performance. The possible influences of organization's organizational characteristics (i.e., size, age, business sector) were also controlled. The mean, Standard Deviation, and the correlation matrix of all the variables (both IVs and DV) used in this regression analysis can be found in Table 6.6.

Four regression models were constructed for this analysis (see table 6.8). Model one included only the controlled organizational characteristic variables. The model was not significant and none of the organizational characteristic variables was significantly related to organization's organizational performance. Model two examined the effects of interorganizational network diversity on organizational performance. The model was not significant. Model three tested the effects of interorganizational network tie strength on organizational performance and the model was not significant either. Model4 incorporated both the interorganizational network diversity and tie strength, and the result supported the findings from model 2 and 3.

The results of this analysis failed to reject the null hypotheses that the relationship between interorganizational network diversity & organization's organizational performance (H2c), and tie strength & organization's organizational performance (H2d). Therefore, it was concluded that neither the diversity of tie strength of organization's business network would affect its organizational performance.

Table 6.8 Regression Models on Interorganizational Network Structure and Organizational Performance

Variables	Model 1	Model 2	Model 3	Model 4
Constant	5.490*** (.37)	5.018*** (.421)	5.288*** (.559)	5.110*** (.600)
Org. size	-.002 (.04)	-.013 (.043)	-.025 (.049)	-.029 (.049)
Org. Age	-.002 (.01)	-.005 (.010)	-.003 (.012)	-.003 (.012)
Accommodation	-.015 (.39)	-.067 (.389)	-.113 (.440)	-.155 (.443)
Food & Bevg.	.519 (.43)	.382 (.434)	.434 (.492)	.373 (.499)
Attraction	.162 (.49)	.006 (.505)	.213 (.582)	.142 (.590)
Recreation	.508 (.47)	.682 (.471)	.647 (.563)	.734 (.574)
Entertainment	.179 (.41)	.246 (.414)	.160 (.459)	.152 (.460)
T. Intermediaries	.468 (.39)	.398 (.385)	.464 (.438)	.432 (.441)
Transportation	.663 (.56)	.390 (.613)	.283 (.659)	.297 (.661)
T. Media	1.310 (.96)	1.152 (.951)	1.113 (1.025)	1.060 (1.029)
T. Association	.354 (.73)	.162 (.727)	.251 (.776)	.152 (.787)
Government	-.560 (.99)	-.538 (.978)	-.506 (1.033)	-.509 (1.034)
IntOrg. Ntwk Dvsty.		.055 (.023)		.028 (.034)
IntOrg. Tie Stregth			.265 (.307)	.194 (.319)
R^2	.09	.125	.123	.129
Adjusted R^2	.001	.017	-.007	-.011
F value (df)	1.01 (12)	1.154 (13)	.946 (13)	.924 (14)

*. P< 0.05; **. P< 0.01; ***. P<0.001

Perceived Market Turbulence and Performance

The following analyses examined the relationships between the perceived market turbulence and organization performance. The research question and null hypotheses stated:

Research Question 3: How do environmental factors influence the tourism organization's performance?

H3a: Perceived market turbulence is not significantly related to organization's market performance.

H3b: Perceived market turbulence is not significantly related to organization's organizational performance.

Two regression models were run for each of hypotheses H3a and H3b (see table 6.9). The possible influences of organization's organizational characteristics (i.e., size, age, business sector) were controlled for both of the two analyses.

For the analysis on the relationship between perceived market turbulence and market performance, the baseline model used market performance as dependent variable and included only the controlled organizational characteristic variables. The model was found not significant. Model two examined the effects of market turbulence on market performance. The model was significant ($p < 0.05$) with 17.2% of the total variance explained. In this model, market turbulence ($B = -0.325$, $p < 0.001$) was found significantly related with market performance. With one unit

increase in its market turbulence, organization's market performance would decrease 0.325 units.

For the analysis on the relationship between perceived market turbulence and organizational performance, the baseline model used organizational performance as dependent variable and included only the controlled organizational characteristic variables. The model was found not significant. Model two examined the effects of market turbulence on organizational performance. The model was not significant either.

The results of this analysis rejected the null hypothesis that perceived market turbulence is not significantly related to organization's market performance (H3a). However, this analysis failed to reject the other hypothesis stating that perceived market turbulence is not significantly related to organization's organizational performance (H3b). It was concluded that the market turbulence would have negative impact on organization's market performance, but not on its organizational performance.

Table 6.9 Regression Models on Market Turbulence and Organization Performance

Variables	DV = Market Performance		DV = Organizational Performance	
	Model 1	Model 2	Model 1	Model 2
Constant	4.351*** (.56)	5.915*** (.69)	5.490*** (.37)	5.811*** (.48)
Org. size	.137 (.06)	.108 (.06)	-.002 (.04)	-.008 (0.4)
Org. Age	-.015 (.02)	.001 (.02)	-.002 (.01)	.001 (.01)
Accommodation	-.034 (.58)	-.015 (.56)	-.015 (.39)	-.011 (.39)
Food & Bevg.	.153 (.64)	.270 (.62)	.519 (.43)	.543 (.43)
Attraction	.872 (.75)	.741 (.72)	.162 (.49)	.135 (.49)
Recreation	.956 (.71)	.931 (.68)	.508 (.47)	.502 (.47)
Entertainment	.252 (.62)	.265 (.59)	.179 (.41)	.182 (.41)
T. Intermediaries	.473 (.59)	.373 (.56)	.468 (.39)	.448 (.39)
Transportation	1.086 (.85)	1.019 (.81)	.663 (.56)	.649 (.56)
T. Media	-.061 (1.45)	-.021 (1.38)	1.310 (.96)	1.318 (.96)
T. Association	.896 (1.1)	.784 (1.05)	.354 (.73)	.331 (.73)
Government	-1.631 (1.49)	-1.497 (1.42)	-.560 (.99)	-.533 (.99)
Mrkt. Turb.		-.325*** (.09)		-.067 (.06)
R^2	.083	.172	.09	.099
Adjusted R^2	-.007	.083	.001	.002
F value (df)	.923 (12)	1.931* (13)	1.01 (12)	1.017 (13)

*. P< 0.05; **. P< 0.01; ***. P<0.001

Perceived Market Turbulence and Interorganizational Network Structure

The following analyses examined the relationships between the perceived market turbulence and interorganizational network structures. The research question and null hypotheses stated:

Research Question 4: How do environmental factors influence the tourism organization's interorganizational network structure in a destination?

H4a: Perceived market turbulence is not significantly related to the compositional diversity of organization's interorganizational network.

H4b: Perceived market turbulence is not significantly related to tie strength of organization's interorganizational network.

For each of hypotheses H4a and H4b, two regression analyses were run. The possible influences of organization's organizational characteristics (i.e., size, age, business sector) were controlled for both of the two analyses.

For the analysis on the relationship between market turbulence and interorganizational network diversity, the baseline model use interorganizational network diversity as dependent variable and included only the controlled organizational characteristic variables. The model was significant ($p < 0.05$) with 18.6% of the variance explained. Organization size ($B = 0.417$, $p < 0.05$) was found significantly related to the diversity of organization's business networks. With one unit increase in its organization size, the diversity of organization's business network would increase by 0.417 units. Model two added market turbulence into the baseline

model. The model was significant ($p < 0.01$) with 24.1% of the total variance explained. In this model, market turbulence ($B = -0.747$, $p < 0.01$) was found to be negatively related with market performance. With one unit increase in its market turbulence, organization's interorganizational network diversity would decrease by 0.747 units.

For the analysis on the relationship between market turbulence and interorganizational network tie strength, the baseline model use interorganizational network tie strength as dependent variable and included only the controlled organizational characteristic variables. The model was found not significant. Model two examined the effects of market turbulence on interorganizational network tie strength. The model was not significant either.

The results of this analysis rejected the null hypothesis that perceived market turbulence is not significantly related to organization's interorganizational network diversity (H4a). However, this analysis failed to reject the other hypothesis stating that perceived market turbulence is not significantly related to organization's interorganizational network tie strength (H4b). It was concluded that the market turbulence would have negative impacts on the diversity of organization's business network, but had no effect on the strength of its business network ties.

Table 6.10 Regression Models on Market Turbulence and Interorganizational Network Structure

Variables	DV = ION Diversity		DV = ION Tie Strength	
	Model 1	Model 2	Model 1	Model 2
Constant	8.850*** (1.518)	12.499*** (1.963)	1.240*** (.140)	1.183*** (.186)
Org. size	.417* (.172)	.345* (.168)	.052 (.016)	.054 (.016)
Org. Age	-.020 (.042)	.012 (.042)	-.006 (.004)	-.007 (.004)
Accommodation	1.130 (1.606)	1.195 (1.558)	.003 (.151)	.004 (.152)
Food & Bevg.	1.588 (1.788)	1.964 (1.739)	.016 (.170)	.010 (.171)
Attraction	1.741 (1.994)	1.599 (1.934)	.232 (.188)	.235 (.189)
Recreation	-3.165 (1.923)	-3.214 (1.864)	.033 (.194)	.035 (.195)
Entertainment	.735 (1.710)	.735 (1.659)	.000 (.158)	.001 (.159)
T. Intermediaries	1.040 (1.580)	.798 (1.535)	.052 (.149)	.056 (.150)
Transportation	.083 (2.535)	-.428 (2.465)	.093 (.227)	.102 (.228)
T. Media	3.702 (3.913)	3.882 (3.795)	.694 (.344)	.691 (.346)
T. Association	4.446 (2.974)	4.251 (2.885)	.235 (.266)	.238 (.267)
Government	-.799 (4.039)	-.373 (3.919)	-.037 (.355)	-.044 (.357)
Mrkt. Turb.		-.747** (.266)		.012 (.025)
R^2	.186	.241	.172	.174
Adjusted R^2	.096	.15	.064	.056
F value (df)	2.07* (12)	2.64** (13)	1.592 (12)	1.474 (13)

*. P< 0.05; **. P< 0.01; ***. P<0.001

Mediation of Interorganizational Network Structure on Market Turbulence

The following analyses examined the mediating effects of interorganizaitonal network structures on the relationships between the market turbulence and organization performance. The research question and null hypotheses stated:

Research Question 5: How do tourism organization's interorganizational networks mediate the relationship between environmental factors and performance?

H5a: The compositional diversity of organization's interorganizational network does not mediate the relationship between perceived market turbulence and organization's market performance.

H5b: The compositional diversity of organization's interorganizational network diversity does not mediate the relationship between perceived market turbulence and organization's organizational performance.

H5c: The tie strength of organization's interorganizational network does not mediate the relationship between perceived market turbulence and organization's market performance.

H5d: The tie strength of organization's interorganizational network diversity does not mediate the relationship between perceived market turbulence and organization's organizational performance.

Because previous analyses did not find any significant relationship between market turbulence and interorganizational tie strength, interorganizational tie strength and market performance, interorganizational tie strength and organizational performance, as

well as between market turbulence and organizational performance, Hypotheses H5b, H5c, and H5d were automatically failed to reject. Therefore, analysis was only needed for testing Hypothesis H5a.

In order to test the mediating effect of interorganizational network diversity on the relationship between market turbulence and market performance, a series of regression analyses were run. With organizational characteristics being controlled, model one and model two respectively showed that market turbulence (B= -0.325, SD=0.09, $p<0.001$) and interorganizational network diversity (B=0.166, SD=0.03, $p<0.001$) were significantly related to organization's market performance (see table 6.11). Both market turbulence and interorganizational network diversity were included in model three and both of them were significant ($p<0.001$). In addition, the significant relationship between market turbulence and interorganizational network diversity was also confirmed in previous test (see table 6.10). All these significantly relationship between the variables suggested the possibility that interorganizational network diversity might partially mediate the relationship between market turbulence and market performance.

Sobel's (1982) test[1] was run to test the significance of the mediation. Interorganizational network diversity's mediating effect was calculated as -0.124. The z-value of this mediation was -2.504, which was smaller than the critical value of -1.95 and indicated that this mediating effect was significant.

[1] Sobel test equation: z-value $=a*b/SQRT(b^2*S_a^2+a^2*S_b^2)$, where a is the effect of independent variable on the mediator, S_a is the standard error of effect a, b is the effect of mediator on dependent variable, and S_b is the standard error of effect b. Z-value is used to determine if the mediation is significant by comparing it with the critical value of $\pm$ 1.96

Therefore, the results of this analysis rejected the null hypothesis that organization's interorganizational network diversity does not mediate the relationship between perceived market turbulence and organization's market performance (H5a).

Table 6.11 Regression Models on Market Turbulence and Interorganizational Network Diversity

Variables	Model 1	Model 2	Model 3
Constant	5.915***	2.925***	4.523***
	(.69)	(.60)	(.788)
Org. size	.108	.068	.052
	(.06)	(.06)	(.059)
Org. Age	.001	-.016	-.004
	(.02)	(.02)	(.015)
Accommodation	-.015	-.152	-.100
	(.56)	(.55)	(.534)
Food & Bevg.	.270	.025	.205
	(.62)	(.62)	(.5980
Attraction	.741	.480	.447
	(.72)	(.72)	(.692)
Recreation	.931	1.489	1.387*
	(.68)	(.67)	(.646)
Entertainment	.265	.081	.100
	(.59)	(.59)	(.567)
T. Intermediaries	.373	.315	.246
	(.56)	(.55)	(.527)
Transportation	1.019	1.168	.974
	(.81)	(.87)	(.843)
T. Media	-.021	-.591	-.436
	(1.38)	(1.35)	(1.304)
T. Association	.784	.225	.260
	(1.05)	(1.03)	(.996)
Government	-1.497	-1.419	-1.288
	(1.42)	(1.39)	(1.340)
Envir. Turb.	-.325***		-.281**
	(.09)		(.094)
IntOrg. Ntwk Dvsty.		.166***	.140***
		(.03)	(.033)
R^2	.172	.26	.318
Adjusted R^2	.083	.168	.226
F value (df)	1.931*	2.838**	3.465***
	(13)	(13)	(14)

*. P< 0.05; **. P< 0.01; ***. P<0.001

Interpersonal Network Structure and Performance

The following analyses examined the relationships between boundary-spanning personnel's social network and organization performance. The research question and null hypotheses stated:

Research Question 6: How does the boundary-spanning personnel's social network affect organization's performance?

H6a: The compositional diversity of boundary-spanning personnel's social network is not significantly related to organization's market performance.

H6b: The tie strength of boundary-spanning personnel's social network is not significantly related to organization's market performance.

H6c: The compositional diversity of boundary-spanning personnel's social network is not significantly related to organization's organizational performance.

H6d: The tie strength of boundary-spanning personnel's social network is not significantly related to organization's organizational performance.

For hypotheses H6a and H6b, multiple regression analysis was used to test the main effects of interpersonal network diversity and tie strength on organization's market performance (see table 6.12). The possible influences of organization's organizational characteristics (i.e., size, age, business sector) were all controlled in the baseline model (i.e. model one).

Four regression models were constructed for this analysis. Model one included only the controlled organizational characteristic variables. The model was not significant and none of the organizational characteristic variables was significantly related to organization's market performance. Model two examined the effects of interpersonal network diversity on market performance. The model was significant ($p < 0.001$) with 20.5% of the total variance explained. In this model, interpersonal network diversity ($B = 0.179$, $p < 0.001$) was found significantly related with market performance. With one unit increase in the interpersonal network diversity of boundary-spanning personnel, organization's market performance would increase 0.179 units. Model three tested the effects of interpersonal network tie strength on market performance and the model was not significant. Model four incorporated both the interpersonal network diversity and tie strength, and the result supported the findings from model two and three.

The results of this analysis rejected the null hypothesis that the compositional diversity of boundary-spanning personnel's social network is not significantly related to organization's market performance (H6a). However, this analysis failed to reject the other hypothesis stating that the tie strength of boundary-spanning personnel's social network is not significantly related to organization's market performance (H6b). It was concluded that it was the diversity, other than the tie strength, of the boundary-spanning personnel's social network in business context that were related to organization's market performance.

Table 6.12 Regression Models on Interpersonal Network Structure and Market Performance

Variables	Model 1	Model 2	Model 3	Model 4
Constant	4.351***	2.388***	3.622***	2.433***
	(.56)	(.7)	(.7)	(.734)
Org. size	.137	.095	.119	.097
	(.06)	(.06)	(.06)	(.060)
Org. Age	-.015	-.007	-.012	-.007
	(.02)	(.01)	(.02)	(.014)
Accommodation	-.034	-.024	.129	-.042
	(.58)	(.55)	(.59)	(.561)
Food & Bevg.	.153	.020	.258	.006
	(.64)	(.62)	(.65)	(.622)
Attraction	.872	.685	.914	.675
	(.75)	(.07)	(.75)	(.712)
Recreation	.956	1.384*	1.171	1.366*
	(.71)	(.68)	(.72)	(.685)
Entertainment	.252	.088	.320	.074
	(.62)	(.59)	(.62)	(.594)
T. Intermediaries	.473	.361	.537	.349
	(.59)	(.55)	(.59)	(.558)
Transportation	1.086	1.123	1.188	1.110
	(.85)	(.8)	(.85)	(.810)
T. Media	-.061	-.665	.083	-.701
	(1.45)	(1.37)	(1.45)	(1.385)
T. Association	.896	.246	.897	.229
	(1.1)	(1.05)	(1.1)	(1.054)
Government	-1.631	-1.629	-1.422	-1.658
	(1.49)	(1.4)	(1.49)	(1.417)
IntPsn. Ntwk Dvsty		.179***		.184***
		(.04)		(.048)
IntPsn. Tie Stregth			.337	-.046
			(.19)	(.209)
R^2	.083	.205	.106	.205
Adjusted R^2	-.007	.117	.007	.110
F value (df)	.923	2.337**	1.074	2.156*
	(12)	(13)	(13)	(14)

*. P< 0.05; **. P< 0.01; ***. P<0.001

For hypotheses H6c and H6d, multiple regression analysis was run to examine the main effects of interpersonal network diversity and tie strength on organization's organizational performance. Four regression models were constructed for this

analysis (see table 6.13). Model one included only the controlled organizational characteristic variables. The model was not significant and none of the organizational characteristic variables was significantly related to organization's organizational performance. Model two examined the effects of interpersonal network diversity on organizational performance. The model was not significant. Model three tested the effects of interpersonal network tie strength on organizational performance and the model was not significant either. Model four incorporated both the interpersonal network diversity and tie strength, and the result supported the findings from model two and three.

The results of this analysis failed to reject the null hypotheses that the relationship between interorganizational network diversity & organization's organizational performance (H6c), and tie strength & organization's organizational performance (H6d). Therefore, it was concluded that neither the diversity nor the tie strength of boundary-spanning personnel's social networks in business context would affect its organizational performance.

Table 6.13 Regression Models on Interpersonal Network Structure and Organizational Performance

Variables	Model 1	Model 2	Model 3	Model 4
Constant	5.490***	4.552***	4.882***	4.424***
	(.37)	(.48)	(.46)	(.496)
Org. size	-.002	-.012	-.007	-.016
	(.04)	(.04)	(.04)	(.040)
Org. Age	-.002	.000	-.001	.000
	(.01)	(.01)	(.01)	(.010)
Accommodation	-.015	.013	.132	.066
	(.39)	(.38)	(.38)	(.380)
Food & Bevg.	.519	.403	.540	.443
	(.43)	(.42)	(.43)	(.420)
Attraction	.162	.099	.218	.127
	(.49)	(.48)	(.49)	(.481)
Recreation	.508	.711	.685	.760
	(.47)	(.46)	(.47)	(.463)
Entertainment	.179	.109	.243	.148
	(.41)	(.4)	(.41)	(.402)
T. Intermediaries	.468	.419	.525	.452
	(.39)	(.38)	(.38)	(.377)
Transportation	.663	.693	.758	.728
	(.56)	(.55)	(.56)	(.548)
T. Media	1.310	1.035	1.438	1.137
	(.96)	(.93)	(.94)	(.937)
T. Association	.354	.069	.376	.118
	(.73)	(.71)	(.37)	(.713)
Government	-.560	-.604	-.430	-.521
	(.99)	(.95)	(.97)	(.959)
IntPsn. Ntwk Dvsty		.085		.071
		(.03)		(.033)
IntPsn. Tie Stregth			.279	.132
			(.13)	(.142)
R^2	.09	.145	.117	.151
Adjusted R^2	.001	.051	.02	.05
F value (df)	1.01	1.09	1.205	1.492
	(12)	(13)	(13)	(14)

*. P< 0.05; **. P< 0.01; ***. P<0.001

Interpersonal and Interorganizational Network Structures

The following analyses examined the relationships between boundary-spanning personnel's social network structures and their organization's interorganizational network structures. The research question and null hypotheses stated:

Research Question 7: How does boundary-spanning personnel's social network affect tourism organization's interorganizaitonal network structure in a destination?

H7a: The compositional diversity of boundary-spanning personnel's social network is not significantly related to the compositional diversity of organization's interorganizational network.

H7b: The boundary-spanning personnel's organizational position does not moderate the relationship between the compositional diversities of his/her social network and organization's interorganizational network.

H7c: The tie strength of boundary-spanning personnel's social network is not significantly related to the tie strength of organization's interorganizational network.

H7d: The boundary-spanning personnel's organizational position does not moderate the relationship between the tie strengths of his/her social network tie strength and organization's interorganizational network.

For hypotheses H7a and H7b, multiple regression analysis was used to test the effects of respondent's interpersonal network diversity, organizational position, and

the interaction between these two variables with respect to the interorganizational network diversity (see table 6.14). The possible influences of organization's organizational characteristics (i.e., size, age, business sector) were all controlled in the baseline model (i.e. model one).

Four regression models were constructed for this analysis. Interpersonal network diversity and organizational position were mean-centered for the examination of the interaction between these variables. Model one included only the controlled organizational characteristic variables. The model was not significant and none of the organizational characteristic variables was significantly related to organization's market performance. Model two examined the effects of interpersonal network diversity on interorganizational network diversity. The model was significant ($p< 0.001$) with 60.1% of the total variance explained. In this model, interpersonal network diversity ($B= 0.948$, $p< 0.001$) was found significantly related to the interorganizational network diversity. With one unit increase in the interpersonal network diversity of boundary-spanning personnel, organization's business network diversity would increase 0.948 units. Model three tested the effects of respondent's organizational position ($B= -0.864$, $p<0.05$) on interorganizational network diversity. The model was significant ($p<0.05$) and indicated a negative relationship between these two variables. Model four examined the main effects of both interpersonal network diversity and organizational position in the same model. The interaction term was incorporated in model five. The full model was still significant ($p< 0.001$), but the interaction term was found non-significant in the model.

Table 6.14 Interaction of Interpersonal Network Diversity and Organizational Position

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	8.850*** (1.518)	9.422*** (1.068)	9.338*** (1.588)	9.257*** (1.151)	9.112*** (1.139)
Org. size	.417* (.172)	.209 (.122)	.267 (.179)	.124 (.131)	.134 (.129)
Org. Age	-.020 (.042)	.010 (.030)	-.027 (.042)	.005 (.030)	.002 (.030)
Accommodation	1.130 (1.606)	.806 (1.129)	1.276 (1.654)	1.278 (1.199)	1.534 (1.192)
Food & Bevg.	1.588 (1.788)	.706 (1.259)	2.026 (1.846)	1.569 (1.339)	1.742 (1.325)
Attraction	1.741 (1.994)	1.163 (1.402)	1.167 (2.013)	1.190 (1.460)	1.547 (1.454)
Recreation	-3.165 (1.923)	-.885 (1.368)	-2.232 (2.008)	-.271 (1.470)	-.024 (1.458)
Entertainment	.735 (1.710)	.135 (1.203)	.676 (1.777)	.542 (1.289)	.748 (1.277)
T. Intermediaries	1.040 (1.580)	.258 (1.113)	1.516 (1.652)	1.050 (1.199)	1.267 (1.189)
Transportation	.083 (2.535)	1.153 (1.784)	.754 (2.523)	1.987 (1.834)	2.403 (1.824)
T. Media	3.702 (3.913)	.759 (2.764)	3.085 (3.790)	.878 (2.757)	1.662 (2.755)
T. Association	4.446 (2.974)	1.223 (2.112)	3.931 (2.912)	1.461 (2.127)	2.055 (2.124)
Government	-.799 (4.039)	-.600 (2.839)	-.519 (3.895)	-.094 (2.824)	.089 (2.790)
IntPsn. Ntwk Dvsty		.948*** (.089)		.885*** (.093)	.852*** (.094)
Org. Position			-.864* (.387)	-.628* (.282)	-.711* (.282)
IntPsn. Ntwk Dvsty × Org. Position					.185 (.099)
R^2	.186	.601	.208	.588	.602
Adjusted R^2	.096	.553	.104	.529	.541
F value (df)	2.07* (12)	12.534*** (13)	2.002* (13)	9.993*** (14)	9.794*** (15)

*. P< 0.05; **. P< 0.01; ***. P<0.001

The results of this analysis rejected the null hypothesis that the compositional diversity of boundary-spanning personnel's social network is not significantly related to organization's interorganizational network diversity (H7a). However, this analysis failed to reject the other hypothesis stating that the boundary-spanning personnel's organizational position does not moderate the relationship between his/her interpersonal network diversity and organization's interorganizational network diversity (H7b).

For hypotheses H7c and H7d, the same procedure was carried out to test the effects of respondent's interpersonal network tie strength, organizational position, and the interaction between these two variables with respect to the interorganizational network tie strength (see table 6.15). The possible influences of organization's organizational characteristics (i.e., size, age, business sector) were all controlled in the baseline model (i.e. model one).

Four regression models were constructed for this analysis. Interpersonal network tie strength and organizational position were mean-centered for the examination of the interaction between these variables. Model two, three, and four added interorganizational network tie strength and organizational position into the baseline model to examine the main effects of these two variables. The results indicated that interpersonal network tie strength ($B=0.133$, $p<0.01$) is positively related to the network tie strength at interorganizational level, while respondent's organizational position ($B=-0.81$, $p<0.05$) was negatively related to the interorganizational network tie strength. The interaction term was incorporated in

model five. The full model was still significant ($p < 0.001$), but the interaction term was found non-significant in the model.

Table 6.15 Interaction of Interpersonal Network Tie Strength and Organizational Position

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	1.240***	1.229***	1.15***	1.116***	1.161***
	(.140)	(.135)	(.147)	(.143)	(.142)
Org. size	.052	.041*	.048**	.038*	.044**
	(.016)	(.016)	(.017)	(.016)	(.016)
Org. Age	-.006	-.004	-.007	-.005	-.006
	(.004)	(.004)	(.004)	(.004)	(.004)
Accommodation	.003	018	.123	.157	.086
	(.151)	(.146)	(.158)	(.153)	(.152)
Food & Bevg.	.016	.028	.209	.235	.170
	(.170)	(.164)	(.177)	(.171)	(.170)
Attraction	.232	.218	.278	.289	.211
	(.188)	(.182)	(.191)	(.184)	(.184)
Recreation	.033	.117	.180	.277	.226
	(.194)	(.190)	(.197)	(.193)	(.190)
Entertainment	.000	.011	.073	.107	.047
	(.158)	(.153)	(.166)	(.161)	(.160)
T. Intermediaries	.052	.039	.164	.171	.120
	(.149)	(.144)	(.158)	(.152)	(.153)
Transportation	.093	.115	.281	.316	.292
	(.227)	(.219)	(.229)	(.221)	(.222)
T. Media	.694	.715*	.734*	.776*	.582
	(.344)	(.332)	(.332)	(.320)	(.323)
T. Association	.235	.194	.305	.288	.160
	(.266)	(.256)	(.260)	(.251)	(.254)
Government	-.037	.036	.028	.113	-.002
	(.355)	(.344)	(.342)	(.331)	(.327)
IntPsn. Ntwk Tie Stren.		.142**		.133**	.035**
		(.050)		(.049)	(.012)
Org. Position			-.086*	-.081*	-.076*
			(.035)	(.034)	(.034)
IntPsn. Ntwk Tie Stren × Org. Position					-.010
					(.012)
r^2	.172	.238	.29	.348	.365
Adjusted r^2	.064	.130	.18	.238	.249
F value (df)	1.592	2.192*	2.641**	3.166***	3.143***
	(12)	(13)	(13)	(14)	(15)

*. P< 0.05; **. P< 0.01; ***. P<0.001

In conclusion, the results of this analysis rejected the null hypothesis that the tie strength of boundary-spanning personnel's social network is not significantly related to organization's interorganizational network tie strength (H7c). However, this analysis failed to reject the other hypothesis stating that the boundary-spanning personnel's organizational position does not moderate the relationship between his/her interpersonal network tie strength and organization's interorganizational network tie strength (H7d).

Mediation of Interorganizational Network Structures on Interpersonal Network Structures

The following analyses examined the mediating effects of interorganizational network structures on the relationships between boundary-spanning personnel's social network structures and their organization's performance. The research question and null hypotheses stated:

Research Question 8: How do the interorganizational network structures mediate the relationship between the boundary-spanning personnel's interpersonal network structure and organization' performance?

H8a: Organization's interorganizational network diversity does not mediate the relationship between boundary-spanning personnel's interpersonal network diversity and organization's market performance.

H8b: Organization's interorganizational network diversity does not mediate the relationship between boundary-spanning personnel's interpersonal network diversity and organization's organizational performance.

H8c: Organization's interorganizational network tie strength does not mediate the relationship between boundary-spanning personnel's interpersonal network tie strength and organization's market performance.

H8d: Organization's interorganizational network tie strength does not mediate the relationship between boundary-spanning personnel's interpersonal network tie strength and organization's organizational performance.

Since previous analyses did not find any significant relationship between interpersonal tie strength and market performance, between interpersonal network diversity and organizational performance, as well as between interpersonal network tie strength and organizational performance, Hypotheses H8b, H8c, and H8d were automatically failed to reject. Therefore, analysis was only needed for testing Hypothesis H8a.

In order to test the mediating effect of interorganizational network diversity on the relationship between interpersonal network diversity and market performance, a series of regression analyses were run. Model one was the baseline model with only the organizational characteristics included. Model two and three respectively showed that interpersonal network diversity (B= 0.179, SD=0.04, $p<0.01$) and interorganizational network diversity (B=0.166, SD=0.03, $p<0.01$) were significantly related to organization's market performance (see table 6.14). Both interpersonal and

interorganizational network diversities were included in model three. It was found that interpersonal network diversity was no longer significant when interorganizational network diversity's effect was controlled. Considering the significant relationship between interpersonal network diversity and interorganizational network diversity (see table 6.14), it was reasonable to conclude that there was a full mediation of interorganizational network on the relationship between interpersonal network diversity and organization's market performance.

Table 6.16 Regression Models on the Mediation of Interorganizational Network Structure

Variables	Model 1	Model 2	Model 3	Model 4
Constant	4.351*** (.56)	2.388*** (.7)	2.925*** (.60)	2.428*** (.707)
Org. size	.137 (.06)	.095 (.06)	.068 (.06)	.069 (.060)
Org. Age	-.015 (.02)	-.007 (.01)	-.016 (.02)	-.014 (.015)
Accommodation	-.034 (.58)	-.024 (.55)	-.152 (.55)	-.132 (.551)
Food & Bevg.	.153 (.64)	.020 (.62)	.025 (.62)	.017 (.614)
Attraction	.872 (.75)	.685 (.07)	.480 (.72)	.483 (.715)
Recreation	.956 (.71)	1.384* (.68)	1.489 (.67)	1.544* (.668)
Entertainment	.252 (.62)	.088 (.59)	.081 (.59)	.062 (.586)
T. Intermediaries	.473 (.59)	.361 (.55)	.315 (.55)	.290 (.544)
Transportation	1.086 (.85)	1.123 (.8)	1.168 (.87)	1.260 (.871)
T. Media	-.061 (1.45)	-.665 (1.37)	-.591 (1.35)	-.690 (1.348)
T. Association	.896 (1.1)	.246 (1.05)	.225 (1.03)	.137 (1.032)
Government	-1.631 (1.49)	-1.629 (1.4)	-1.419 (1.39)	-1.445 (1.384)
IntPsn. Ntwk Dvsty		.179*** (.04)		.082 (.063)
IntOrg. Ntwk Dvsty.			.166*** (.03)	.122* (.048)
r^2	.083	.205	.26	.272
Adjusted r^2	-.007	.117	.168	.174
F value (df)	.923 (12)	2.337** (13)	2.838** (13)	2.776 (14)**

*. P< 0.05; **. P< 0.01; ***. P<0.001

Summary

In chapter six, the results of the empirical analysis based on the survey data were presented. A final summary of the hypotheses testing is presented in table 6.17.

Table 6.17 Summary of Hypotheses Testing

Research Questions and Hypotheses			**Rejection**
RQ1a	How does boundary-spanning personnel's personality affect the compositional diversity of their social networks in tourism business environment?		
H1a:	The boundary-spanning personnel's personality (i.e., extraversion, agreeableness, conscientiousness, neuroticism, and openness) does not affect the compositional diversity of their social networks in tourism business environment.		YES
	H1a-1	*Extraversion is not significantly related to the compositional diversity of individual's social network in tourism business context.*	YES
	H1a-2	*Agreeableness is not significantly related to the compositional diversity of individual's social network in tourism business context.*	NO
	H1a-3	*Conscientiousness is not significantly related to the compositional diversity of individual's social network in tourism business context.*	NO
	H1a-4	*Neuroticism is not significantly related to the compositional diversity of individual's social network in tourism business context*	NO
	H1a-5	*Openness is not significantly related to the compositional diversity of individual's social network in tourism business context*	NO

Table 6.17 Summary of Hypotheses Testing (Contin.)

Research Questions and Hypotheses			**Rejection**
RQ1b	How does boundary-spanning personnel's personality affect the strength of their social network ties in tourism business environment?		
H1b:	The boundary-spanning personnel's personality (i.e., extraversion, agreeableness, conscientiousness, neuroticism, and openness) does not affect the strength of their social network ties in tourism business environment.		YES
	H1b-1	*Extraversion is not significantly related to the strength of individual's social network ties in tourism business context*	NO
	H1b-2	*Agreeableness is not significantly related to the strength of individual's social network ties in tourism business context*	YES
	H1b-3	*Conscientiousness is not significantly related to the strength of individual's social network ties in tourism business context*	NO
	H1b-4	*Neuroticism is not significantly related to the strength of individual's social network ties in tourism business context*	NO
	H1b-5	*Openness is not significantly related to the strength of individual's social network ties in tourism business context*	NO
RQ2	How do tourism organization's interorganizational networks affect their performance?		
	H2a	*The compositional diversity of interorganizational network is not significantly related to organization's market performance*	YES
	H2b	*The compositional diversity of interorganizational network is not significantly related to organization's organizational performance*	NO
	H2c	*The tie strength of interorganizational network is not significantly related to organization's market performance*	NO

Table 6.17 Summary of Hypotheses Testing (Contin.)

Research Questions and Hypotheses			**Rejection**
	H2d	*The tie strength of interorganizational network is not significantly related to organization's organizational performance*	NO
RQ3	How do environmental factors influence the tourism organization's performance?		
	H3a	*Perceived market turbulence is not significantly related to organization's market performance*	YES
	H3b	*Perceived market turbulence is not significantly related to organization's organizational performance*	NO
RQ4	How do environmental factors influence the tourism organization's interorganizational network structure in a destination?		
	H4a	*Perceived market turbulence is not significantly related to the compositional diversity of organization's interorganizational network*	YES
	H4b	*Perceived market turbulence is not significantly related to tie strength of organization's interorganizational network*	NO
RQ5	How do tourism organization's interorganizational networks mediate the relationship between environmental factors and performance?		
	H5a	*The compositional diversity of organization's interorganizational network does not mediate the relationship between perceived market turbulence and organization's market performance.*	YES
	H5b	*The compositional diversity of organization's interorganizational network diversity does not mediate the relationship between perceived market turbulence and organization's organizational performance*	NO

Table 6.17 Summary of Hypotheses Testing (Contin.)

Research Questions and Hypotheses			Rejection
	H5c	*The tie strength of organization's interorganizational network does not mediate the relationship between perceived market turbulence and organization's market performance.*	NO
	H5d	*The tie strength of organization's interorganizational network diversity does not mediate the relationship between perceived market turbulence and organization's organizational performance*	NO
RQ6	How does the boundary-spanning personnel's social network affect organization's performance?		
	H6a	*The compositional diversity of boundary-spanning personnel's social network is not significantly related to organization's market performance*	YES
	H6b	*The tie strength of boundary-spanning personnel's social network is not significantly related to organization's market performance*	NO
	H6c	*The compositional diversity of boundary-spanning personnel's social network is not significantly related to organization's organizational performance*	NO
	H6d	*The tie strength of boundary-spanning personnel's social network is not significantly related to organization's organizational performance*	NO
RQ7	How does boundary-spanning personnel's social network affect tourism organization's interorganizaitonal network structure in a destination?		
	H7a	*The compositional diversity of boundary-spanning personnel's social network is not significantly related to the compositional diversity of organization's interorganizational network.*	YES

Table 6.17 Summary of Hypotheses Testing (Contin.)

Research Questions and Hypotheses			Rejection
	H7b	*The boundary-spanning personnel's organizational position does not moderate the relationship between the compositional diversities of his/her social network and organization's interorganizational network*	NO
	H7c	*The tie strength of boundary-spanning personnel's social network is not significantly related to the tie strength of organization's interorganizational network.*	YES
	H7d	*The boundary-spanning personnel's organizational position does not moderate the relationship between the tie strengths of his/her social network tie strength and organization's interorganizational network*	NO
RQ8	How do the interorganizational network structures mediate the relationship between the boundary-spanning personnel's interpersonal network structure and organization' performance?		
	H8a	*Organization's interorganizational network diversity does not mediate the relationship between boundary-spanning personnel's interpersonal network diversity and organization's market performance*	YES
	H8b	*Organization's interorganizational network diversity does not mediate the relationship between boundary-spanning personnel's interpersonal network diversity and organization's organizational performance*	NO
	H8c	*Organization's interorganizational network tie strength does not mediate the relationship between boundary-spanning personnel's interpersonal network tie strength and organization's market performance*	NO

Table 6.17 Summary of Hypotheses Testing (Contin.)

Research Questions and Hypotheses		Rejection
H8d	*Organization's interorganizational network tie strength does not mediate the relationship between boundary-spanning personnel's interpersonal network tie strength and organization's organizational performance*	NO

CHAPTER SEVEN

RESULTS OF INTER-HYPERLINK NETWORK ANALYSES

The results of the inter-hyperlink network analysis for tourism organization Web sites are presented in this chapter. A total of 745 Web sites or URLs of tourism-related organizations in Charleston were identified for the inter-hyperlink analysis. Using webometric approaches, the inter-hyperlink data was collected for a series of network analyses. The structural characteristics of the inter-hyperlink network are first reviewed, followed by a series of hypotheses testing on the interorganizational network of tourism organizations in cyberspace. The final presents the hypotheses testing that involved the hyperlink network structures of the online survey respondents.

Inter-hyperlink Network Analysis

An inter-hyperlink contains information on the direct connections among the identified group of Tourism-related organization Web sites. Table 7.1 presents the frequencies and proportion of the identified Web sites in each sector. *Food and Beverage* (n=169, 22.7%), *Attraction* (n=138, 18.5%), *Tourism Intermediaries* (n=121, 16.2%), *Accommodation* (n=96, 12.9%), and Entertainment Business (n=87, 11.7%) were the five major tourism-related sectors that counted for the majority (82.0%) of the identified Web sites. It was important to note that, there was 119 (15.2%) accommodation Web sites originally identified, but 96 (12.9%) were used for the hyperlink search. This was because the network influences of many brand franchising hotels and inns were examined under a single brand Web site. For example, all the Days Inn branches in Charleston area

were examined for their inter-hyperlink networks under a single Web site: [www.daysinn.com]. Therefore, the proportion of *Accommodation* sector was actually underestimated by about 2.3% in this analysis. As the result, seven hundred and forty five valid Web sites were identified for constructing the inter-hyperlink network among them.

Table 7.1 Frequencies of Web sites/URLs Searched for Each Tourism Sectors

ID	Sector	Frequency	Percentage (%)
2	Food and Beverage	169	22.7
3	Attraction	138	18.5
7	Tourism Intermediaries	121	16.2
1	Accommodation	96	12.9
6	Entertainment Business	87	11.7
5	Recreation Operators	40	5.4
15	Other services	38	5.1
8	Transportation	17	2.3
11	Business organization	13	1.7
12	Government Bodies	10	1.3
10	Tourism organization	8	1.1
9	Tourism Media	6	0.8
13	Academic Institutions	2	0.3
	Total	745	100

The output of inter-hyperlink search from the LexiURL Searcher was converted into a n×n data matrix (n=745), with the assistance of the Pajek program. Since this analysis mainly focused on the presence/absence of online connections among the tourism-related organizations other than the strength of these relationships, the inter-hyperlink data matrix was then dichotomized into 1 (i.e. had a relationship) and 0 (i.e.

had no relationship). Figure 7.1 shows an illustrative example of the data matrix. The diagonal values of the matrix were all 0s, as the self-linkings within the Web sites were excluded from this analysis. The data matrix was asymmetrical due to the directional nature of the hyperlinks among the Web sites. For instance, site A having a link to site B does not necessarily means that site B should have a reciprocal link that directs back to site A.

	Web site1	Web site 2	Web site 3	….	Web site745
Web site 1	0	1	1	0	0
Web site 2	0	0	1	0	1
Web site 3	0	0	0	0	1
……	1	0	1	0	0
Web site 745	1	1	0	0	0

Figure 7.1 Illustrative Example of Inter-hyperlink among the Web Sites

Facilitated by *Netdraw* (Borgatti, 2002), the Web site-by-Web site inter-link data matrix was visualized through an inter-hyperlink network. Figure 7.2 presents the structure of the inter-hyperlink network among the Web sites of tourism organizations in Charleston, SC. In this network, each node stands for a Web site, the ties denote connections among them, and the arrows of the ties indicate the direction of the hyperlinks. The isolated nodes (n=88) lying on the left side of the network represents the

Web sites that did not have any connections to the rest of the 745 Web sites. Due to the large amount of nodes in the network and the complexity of the connections among them, it was impossible to understand the structural characteristics of this inter-hyperlink network by visually examining the network chart. Therefore, a number of network measures were carried out for an understanding of the inter-hyperlink network structure, before further testing the relevant hypotheses.

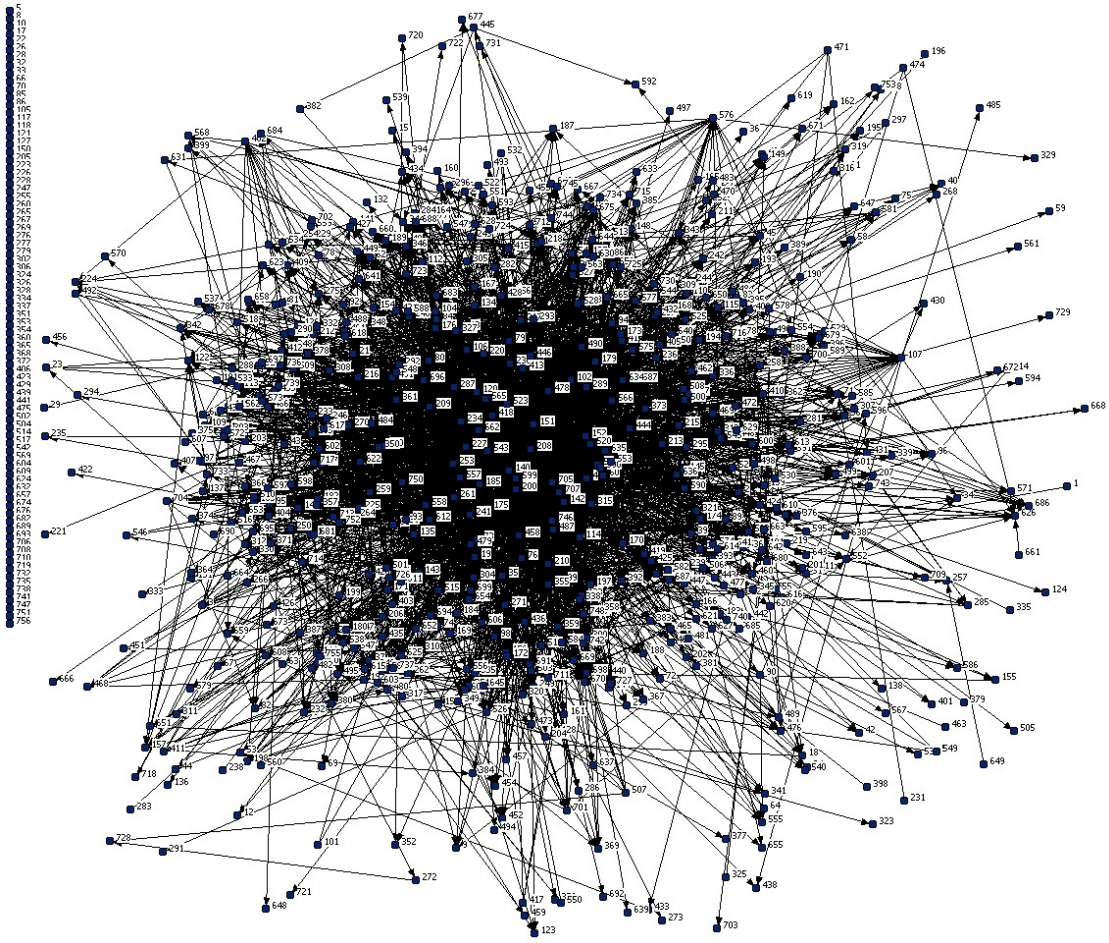

Figure 7.2 Interlink Network among Web sites of Tourism Organizations in Charleston

Structural Description on the Inter-hyperlink Network

In order to understand the structural characteristics of this inter-hyperlink network before testing relevant hypotheses, the study measured the overall network density and the network density at sector level for this network.

Overall Network Density

As one of the most widely used concepts in graph theory, network density measures the extent to which all possible relations in a network are actually present (Mitchell, 1969). Ranging from 0 (every node is isolated from each other) to 1 (every node is connected to each other), the network density is computed as the number of actual connections between nodes divided by the number of possible connections (Scott, 2000). In this study, a higher network density indicated a greater degree of associations among the Web sites of tourism-related organizations in Charleston area. The density of a network can be calculated using the following formula,

$$\mathrm{D} = \frac{\sum_{i=1}^{n}\sum_{j=1}^{n} x_{ij}}{n(n-1)} \qquad (7.1)$$

Where *n* is the number of nodes in the network, *x* is the value (0 or 1 in this case) of the cell in row *i* and column *j* of the matrix.

For the entire inter-hyperlink network, 3908 ties were found among the 745 web sites, and the system density is 0.0071. The density of this network is under 1%, which indicates that, in general, the direct interconnection among the Web sites of tourism-related organizations in Charleston is rare. Tourism organizations were not very active in connecting with each other in cyberspace.

Network Density by Sector

In order to examine how and to what extent the Web sites belonging to different sectors connect to each other, the densities of the inter-hyperlink network of Web sites was also calculated at sector level. To do so, a permutation of the interlink data matrix was first carried out based on sectors, so that the web sites in both the row and the column of the matrix were replaced based on what sector they belong to. Figure 7.3 present an illustrative example of the inter-link matrix after permutation by sectors.

		Accommodation			Food & Beverage			Attraction	
		ws 1	ws 4	ws 6	ws 3	ws 13	…..	ws 53	ws 745
Accomm-odation	ws 1	1	0	1	1	0	…..	0	1
	ws 4	1	0	1	1	0	…..	1	1
	ws 6	0	1	1	0	1	…..	0	0
Food & Beverage	ws 3	1	0	1	0	0	…..	0	1
	ws 13	0	1	0	0	1	…..	0	0
…	…..	…..	…..	…..	…..	…..	…..	…..	…..
Attraction	ws 53	0	0	1	1	1	…..	0	0
	ws 745	1	0	0	1	0	…..	1	1

Figure 7.3 Illustrative example of inter-link matrix by sector

The sector-by-sector densities were calculated in two different ways. For the density within a given sector (see the gray area of figure 7.3), the formula 7.1 was used;

while for the calculation of densities between two sectors, the following formula was used:

$$D_S = \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} x_{ij}}{n \times m} \quad (7.2)$$

Where *n* is the number of web sites in sector N and *m* is the number of web sites in sector M, *x* is the value (0 or 1 in this case) of the cell in row *i* and column *j* of the N-by-M sector matrix.

Table 7.2 presents the density table for the sector-by-sector matrix. The values in gray areas indicate the intensity of connections within the sectors. The values in the remainder cells indicate the intensity of connections between the sectors. It is important to notice that the cell values are directional in a matrix table. For example, the value of the cell on Row S1, Column S2 is larger than the value of the cell on Row S2, Column S1, indicating that the hyperlinking from S1 (Accommodation sector) to S2 (Food and Beverage Sector) is more intense than that from S2 (Food and Beverage Sector) to S1(Accommodation sector).

Table 7.2 Original Network Densities by Sector

Hyperlinks from… \ Hyperlinks to…	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
S1	0.016	0.007	0.012	0.012	0.009	0.003	0.009	0.007	0.021	0.002	0.017	0.005	0.002
S2	0.002	0.001	0.001	0	0.001	0.001	0	0.007	0.007	0.001	0.007	0.006	0.001
S3	0.007	0.003	0.005	0.001	0.004	0.003	0.002	0.021	0.024	0.002	0.020	0.004	0.003
S4	0.003	0	0.001	0.001	0.002	0.001	0.004	0	0.016	0.004	0.010	0	0
S5	0.007	0.005	0.002	0	0.002	0.002	0.001	0.017	0.013	0.001	0.007	0.012	0.001
S6	0.005	0.006	0.015	0.009	0.007	0.005	0.007	0.008	0.025	0.011	0.041	0.012	0.004
S7	0.007	0.002	0.003	0.002	0.005	0.004	0.004	0.010	0.044	0.009	0.006	0	0.003
S8	0.056	0.030	0.040	0.013	0.036	0.021	0.029	0	0.042	0.013	0.033	0	0.004
S9	0.206	0.084	0.107	0.103	0.093	0.107	0.154	0.083	0.250	0.087	0.175	0.125	0.069
S10	0.051	0.030	0.044	0.015	0.026	0.018	0.027	0.051	0.096	0.077	0.169	0.154	0.051
S11	0.010	0.007	0.043	0.033	0.030	0.015	0.018	0.033	0.088	0.085	0.200	0.100	0.013
S12	0.031	0.053	0.058	0.025	0.023	0.025	0.059	0.083	0.250	0.154	0.300	0	0.013
S13	0.010	0.004	0.006	0.001	0.004	0.004	0.005	0.013	0.026	0.012	0.021	0.013	0.002

S1: Accommodation, S2: Food and Beverage, S3: Attraction, S4: Recreation Operators, S5: Entertainment Organizations, S6: Tourism Intermediaries, S7: Transportation, S8: Tourism Media, S9: Tourism Industry Organization/Association, S10: Local Business Organization/Association, S11: Government Bodies, S12: Academic Institutions, S13: Other Tourism Support Services

As network density is very sensitive to network size (Borgatti, Everett, & Freeman, 2002) and the change of network density does not have a linear relationship with the change of network size, it is not reliable to compare the densities of networks with different size, and in this case, to compare the connection intensity between different pairs of sectors. A way to resolve this incomparability issue is to find a method to normalize the network density and make it comparable across networks of all sizes. Adapted from Smith's (2008) approach, the normalization of network density is carried

out in this study by taking the logarithm of the network density with a base of the square root of the total possible relations within a network.

$$D_{SN} = 3 + \frac{\log D_s}{\log \sqrt{n*m}} \quad (7.3)$$

Where *n* is the number of web sites in sector N, *m* is the number of web sites in sector M, and *Ds* is the density of the N-by-M sector matrix.

Table 7.3 presents the normalized density index table for the sector-by-sector matrix. It is important to notice that the values in this table should only be used for comparison, and they are no longer the actual measure of the network densities. A network density index of 0 suggests that there was no connection between the two sectors or within the given sector, but 1 is no longer indicating a full connection in the network. The values in gray areas indicate the normalized intensity of connections within the sectors. The values in the remainder cells indicate the normalized intensity of connections between the sectors. This normalized network density table made it possible to compare the connection intensity within and between different sectors. For example, the value of cell S1-S1 (D_{SN}=2.09, S1=Accommodation) was higher than that of Cell S2-S2 (D_{SN}=1.671, S2= food and beverage), which suggested that the tourism organizations in accommodations had a higher tendency to connect with each other than those in food and beverage sector. Again, the value of cell S1-S2 (D_{SN}=1.973) was higher than that of the cell S2-S1 (D_{SN}=1.656). it suggested that tourism organizations in accommodation sector had a higher tendency to direct a hyperlink to organizations in food and beverage sector than the tendency that food and beverage organizations had to direct a hyperlink to an accommodation organization.

Table 7.3 Normalized Network Densities by Sector (D_{SN})

Hyperlinks from… \ Hyperlinks to…	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
S1	2.090	1.973	2.072	1.933	1.956	1.788	1.713	1.436	1.835	1.194	1.808	1	1.507
S2	1.656	1.671	1.695	1	1.535	1.571	1	1.562	1.639	1.180	1.669	1.238	1.409
S3	1.955	1.850	1.940	1.322	1.829	1.764	1.357	1.843	1.930	1.370	1.922	1	1.599
S4	1.558	0	1.255	1.195	1.439	1.379	1.337	0	1.558	1.222	1.463	0	0
S5	1.888	1.891	1.685	0	1.637	1.657	1	1.702	1.671	1	1.529	1.269	1.342
S6	1.875	1.978	2.132	1.897	1.926	1.899	1.692	1.544	1.924	1.770	2.102	1.400	1.672
S7	1.648	1.450	1.536	1.000	1.533	1.545	1.021	1	1.729	1.257	1	0	1.214
S8	2.091	1.983	2.041	1.401	1.941	1.822	1.475	0	1.358	1	1.339	0	1
S9	2.524	2.311	2.362	2.212	2.276	2.351	2.239	1.716	2.333	1.946	2.204	1.500	2.065
S10	2.162	2.089	2.163	1.665	1.958	1.915	1.664	1.636	1.992	2	2.270	1.851	2.038
S11	1.671	1.669	2.128	1.856	1.963	1.814	1.428	1.339	1.888	1.985	2.301	1.463	1.542
S12	1.682	1.993	1.987	1.316	1.537	1.653	1.393	1	2	1.851	2.196	0	1
S13	1.867	1.725	1.794	1.189	1.651	1.672	1.340	1.405	1.727	1.578	1.700	1	1.309

S1: Accommodation, S2: Food and Beverage, S3: Attraction, S4: Recreation Operators, S5: Entertainment Organizations, S6: Tourism Intermediaries, S7: Transportation, S8: Tourism Media, S9: Tourism Industry Organization/Association, S10: Local Business Organization/Association, S11: Government Bodies, S12: Academic Institutions, S13: Other Tourism Support Services

The intensity of connections within and between the 13 identified tourism-related sectors was summarized in table 7.4. The Column of Normalized Sector Density suggests the intensity of connections within the sectors. It was found that *Tourism Industry Organizations/Associations* had the most intense connections (D_{SN} = 2.333) among each other within their own sector, followed by *Government Bodies* (D_{SN}=2.301), *Accommodation* (D_{SN}=2.09), *Local Business Organizations* (D_{SN}=2), *Attractions* (D_{SN}=1.94), and *Tourism Intermediaries* (D_{SN}=1.899). *Transportation* (D_{SN}=1.021),

Recreation Operators (D_{SN}=1.195), and *Other Services* (D_{SN}=1.309) had relatively low intensity of within sector interconnections. No interconnection was found between *Academic Institutions*, and among *Tourism Media*.

The average intensity of inlinkings from other sectors and the average intensity of outlinkings to other sectors were also calculated in this study (see table 7.4), so was the difference between the inlinking and outlinking intensities. It was found that *Accommodation* (I=1.881), *Attraction* (I=1.732), *Entertainment Businesses* (I=1.632), *Tourism Industry Organization/Association* (1.618), and *Government Bodies* (I=1.616) were the five sectors that had the highest level of inlinkings from other tourism-related sectors. *Tourism Industry Organization/Association* (O=2.142), *Local Business Organizations* (O=1.95), *Tourism Intermediaries* (O=1.826), *Government Bodies* (O=1.729), and *Accommodation* (O=1.685) were the five sectors that had the highest level of outlinkings to other tourism-related sectors. The difference between average inlinking and outlinking intensities was also provided for each tourism-related sector. It was interesting to find that, on average, the sectors of *Accommodation, Food and Beverage, Attraction, Recreation Operators, Entertainment Businesses,* and *Transportation* tended to receive more hyperlinks from other sectors than they sent out. In contrast, the sectors of *Tourism Intermediaries, Tourism Media, Tourism Industry Organization/Association, Local Business Organizations, Government Bodies, Academic Institutions,* and *Tourism Media* tended to send more hyperlinks to other sectors than they received.

Table 7.4 Summary of Connection Intensity by Sector

	Sector	Sector size	N. Sector Density	Avrg. inlink	Avrg. outlink	In-out Different
1	Accommodation	96	2.090	1.881	1.685	0.197
2	Food and Beverage	169	1.671	1.578	1.429	0.149
3	Attraction	138	1.940	1.731	1.645	0.086
4	Recreation Operators	40	1.195	1.238	0.934	0.304
6	Entertainment Business	87	1.637	1.632	1.386	0.246
7	Tourism Intermediaries	121	1.899	1.595	1.826	-0.231
8	Transportation	17	1.021	1.327	1.243	0.084
9	Tourism Media	6	0.000	1.229	1.454	-0.225
9	Tourism organization	8	2.333	1.618	2.142	-0.524
10	Business organization	13	2.000	1.347	1.950	-0.604
11	Government Bodies	10	2.301	1.616	1.729	-0.113
12	Academic Institutions	2	0.000	0.893	1.634	-0.741
13	Other services	38	1.309	1.240	1.554	-0.314

Inter-hyperlink Network Hypotheses Testing

The following analysis examined the relationships between inter-hyperlink network structure of tourism organizations and their organizational characteristics. The research question and null hypotheses stated:

Research Question 9: How are the organizational characteristics related to the hyperlink network structure of tourism organizations?

H9a: Organization's business sector is not significantly related to its network indegree centrality in cyberspace.

H9b: Organization's business sector is not significantly related to its network outdegree centrality in cyberspace.

H9c: Organization's business sector is not significantly related to its network diversity in cyberspace.

H9d: Organization's business sector is not significantly related to its network homophily in cyberspace.

According to the proposed hypotheses, four network measures were undertaken in the analysis, which included indegree and outdegree network centralities, egocentric network heterogeneity, and egocentric network homophily. The hypotheses testing on each of these measures were present in the following sections.

Network Centrality

Centrality of an actor refers to the extent to which an actor occupies a central position in the network. There are a variety of ways to measure the network centrality of an actor, which include: 1) calculating how many ties a focal actor has to other actors (i.e., degree centrality); 2) calculating how close an actor is to all other actors in a network (i.e., closeness centrality); 3) calculating how often an actor connect other actors who have no direct connections (i.e., betweenness centrality); and 4) calculating how close an actor is to the central located actors (i.e., eigenvector centrality)

Focusing on the direct influence of and on the identified Web sites, this study only examined the degree centrality of the Web sites within the inter-hyperlink network. There are two measures of degree centrality: 1) Indegree centrality, which measure how

many Web sites in the network had created hyperlinks that were directed to the focal Web site, and 2) Outdegree centrality that measures how many Web sites in the network had received a hyperlink from the focal Web site. Both the indegree centrality and outdegree centrality of each Web site in the inter-hyperlink network were calculated in this study. Table 7.5 and Table 7.6 respectively present the top 20 tourism-related organizations whose Web sites had the highest indegree and outdegree centralities. The results show that Charleston Area Convention and Visitor Bureau had both the highest indegree and outdegree centralities in the inter-hyperlink network. Tourist attractions, recreation and entertainment businesses formed the majority of the 20 Web site with highest indegree centralities, while many of the 20 Web sites with highest outdegree centralities were Tourism industry organizations, local business organization, tourism intermediaries, or tourism-related government bodies.

Table 7.5 Top 20 Web sites with Highest Indegree Centrality

Network ID	Organization	InDegree Centrality
151	Charleston Area Convention and Visitor Bureau	110
599	South Carolina Aquarium	52
390	Historic Charleston Foundation	47
4	Lowcountry Strawberry Festival	45
635	Spoleto Festival USA	44
478	Magnolia Plantations and Its Gardens	44
185	Charleston Magazine	43
500	Middleton Place	43
120	Charleston County Park and Recreation Commission	40
99	Boone Hall Plantation	38
287	Drayton Hall	37
140	Charleston Metro Chamber of Commerce	34
612	Southeastern Wildlife Exposition	34
523	Fort Sumter National Monument	34
446	Kiawah Island Resort	33
698	Town of Mount Pleasant	30
543	Patriots Point Maritime & Naval Museum	29
487	Marriott Charleston	28
315	Family Circle Cup	28
355	Gibbes Museum of Art	28

Table 7.6 Top 20 Web sites with Highest Outdegree Centrality

Network ID	Organization	OutDegree Centrality
151	Charleston Area Convention and Visitor Bureau	490
140	Charleston Metro Chamber of Commerce	143
234	Classic Charleston	109
289	Dunes Properties	105
76	1843 Battery Carriage House Inn	93
142	City of Charleston	83
185	Charleston Magazine	83
259	The Charleston Regional Development Alliance	82
599	South Carolina Aquarium	76
410	Water's Edge Inn	70
705	Trident Technical College	70
636	Charleston Metro Sports Council	60
446	Kiawah Island Resort	57
152	Charleston Digital Corridor	52
350	Charleston Area Hospitality Association	52
418	Island Realty	49
553	Planters Inn	49
520	City of North Charleston	40
558	Preservation Society	39
565	Quality Suites Convention Center	38

Hypotheses Testing

The two hypotheses tested in this section stated:

H9a: Organization's business sector is not significantly related to its network indegree centrality in cyberspace.

H9b: Organization's business sector is not significantly related to its network outdegree centrality in cyberspace.

The sector mean of indegree and outdegree centralities were calculated in this study (see table 7.7). On average, a Web site in the identified network had an indegree centrality of 5.25 and an outdegree centrality of 5.25, which meant that, on average, a Web site in the identified inter-hyperlink network sent hyperlinks to about 5 different Website and also received hyperlinks from about 5 different Web sites.

Table 7.7 Average Indegree and Outdegree Centralities by Sector

ID	Sector	N. of Web sites	Avrg. Indegree Cent.	Avrg. outdegree Cent.
1	Accommodation	96	7.29	6.67
2	Food and Beverage	169	4.05	.94
3	Attraction	138	6.61	3.29
4	Recreation Operators	40	4.03	1
5	Entertainment Services	87	4.56	2.55
6	Tourism Intermediaries	121	3.26	6.25
7	Transportation	17	4.47	3.18
8	Tourism Media	6	9.67	23.5
9	Tourism Organizations	8	17.63	84.5
10	Business Organizations	13	5.62	27.38
11	Government Bodies	10	18.70	18.6
12	Academic Institute	2	9.00	35
13	Other services	38	2.79	4.05
	Total	745	5.25	5.25
	F (df)		6.738 (12)***	14.149 (12) ***

*. P< 0.05, **. P< 0.01, ***. P< 0.001

Analysis of Variance was run to test if the average indegree centrality differed by sector. The results indicated that the average indegree centralities were significantly ($F=6.738$, $df=12$, $p<0.001$) different between different tourism sectors. Sector difference explained about 9.9% of the total variance. Post hoc analysis identified three groups of sectors that had significantly different levels of indegree centrality (see appendix F). The

group of sectors that had the low indegree centrality included *Recreation Operators* (I=4.03), *Entertainment Services* (I=4.56), *Tourism Intermediaries* (I=3.26), and *Other Services* (I=2.79). The sector group with medium level of indegree centrality consisted of *Accommodation* (I=7.29), *Attraction* (I=6.61), *Transportation* (I=4.47), *Tourism Media* (I=9.67), *Local Business Organization* (I=5.62), *and Academic Institutions* (I=9.0). The group of sectors with the highest indegree centrality was comprised of T*ourism industry organization* (I=17.63) and *Government Bodies* (I=18.7). Therefore, the analysis rejected the hypotheses stated that organization's business sector is not significantly related to its network indegree centrality in cyberspace.

Analysis of Variance was also run to test if the average outdegree centrality differed by sector. The results showed that the average outdegree centralities were significantly ($F=14.149$, $df=12$, $p<0.001$) different between different tourism sectors. Sector difference explained about 18.8% of the total variance. Post hoc analysis also identified three groups of sectors that had significantly different levels of indegree centrality (see Appendix G). The group of sectors that had the highest outdegree centrality included T*ourism industry organization* (O=84.5), *Tourism Media* (O=23.5), *Local Business Organization* (O=27.38), *Academic Institutions* (O=35), and *Government Bodies* (O=18.6). The outdegree centrality of these sectors was significantly higher than that of the rest. The remainder sectors could not significantly differentiate with each other with respect to their outdegree centrality, except for the sector of *Food and beverage* (O=0.94) whose outdegree centrality was significantly lower than the tourism intermediaries. Therefore, the analysis rejected the hypotheses stated that organization's

business sector is not significantly related to its network outdegree centrality in cyberspace.

Compositional Heterogeneity of Egocentric Network

Each of the 745 identified Web sites in the inter-hyperlink network was also examined for its egocentric network. An egocentric network consists of one actor (ego) and all other actors (alters) with which ego has direct relations, as well as the direct relations among the alters (Knoke & Yang, 2008:13).

One question about the egocentric network structure would be: Does the ego actor tend to connect to alters that are alike with each other? Or how diverse the alters are on a certain attribute? In order to understand the compositional diversity of Web sites' hyperlink connections (i.e. the diversity of tourism-related sectors that the Web sites had hyperlink connection with), this study calculated Blau's (1977) heterogeneity index for each of the Web site in the identified network.

Blau's (1977) heterogeneity index was used to measure the compositional diversity of each web site's egocentric network. Basically, Blau's measure of heterogeneity is 1 minus the sum of the squares of the proportions of each tourism-related sector in ego's network. This measure was calculated using the following formula:

$$\text{Heterogeneity index} = 1 - \sum_j \left(p_j\right)^2, \ 1 \leq j \leq 13 \qquad (7.4)$$

Where j is the number of sector type and P_j is the proportion of all the egocentric web site's online connections that belong to sector type j.

Blau's (1977) heterogeneity index of each Web site in the inter-hyperlink network was calculated in this study. The sector mean of heterogeneity index was also calculated in this study (see table 7.8). It was noticed that the sector of *Accommodation* (H=0.679), *Transportation* (H=0.554), *Tourism Media* (H=0.684), *Tourism Industry Organization/Association* (H=0.734), *Local Business Organizations* (H=0.704), *Government Bodies* (H=0.809), and *Academic Institutions* (H=0.862) had a heterogeneity index that was higher than the average, which meant that Web sites in these sectors had a more diverse hyperlink connections than the average level in the entire network.

7.8 Average Heterogeneity Index by Sector

ID	Sector	N. of Web sites	Heterogeneity Mean
1	Accommodation	92	.679
2	Food and Beverage	135	.536
3	Attraction	124	.541
4	Recreation Operators	33	.486
5	Entertainment Services	82	.515
6	Tourism Intermediaries	113	.492
7	Transportation	17	.554
8	Tourism Media	5	.684
9	Tourism Organizations	7	.734
10	Business Organizations	13	.704
11	Government Bodies	10	.809
12	Academic Institute	1	.862
13	Other services	34	.450
	Total	666	.551
	F (df)		3.781 (12) ***

*. P< 0.05, **. P< 0.01, ***. P< 0.001

Hypotheses Testing

The corresponding hypothesis tested in this section stated:

H9c: Organization's business sector is not significantly related to its network diversity in cyberspace.

Analysis of Variance was also run to test if the average heterogeneity index differed by sector. The results showed that the average network heterogeneity was significantly ($F=3.781$, $df=12$, $p<0.001$) different between different tourism sectors. Sector difference explained about 6.5% of the total variance. The results of post hoc analysis (see appendix H) suggested the network heterogeneity level of *Food and Beverage* (H=0.536), *Attraction* (H=0.541), *Recreation Operators* (H=0.486), *Entertainment Services, Tourism Intermediaries* (H=0.492), *Transportation* (H=0.554), *and Other Services* (H=0.450) were significantly lower than that of the sectors of *Accommodation* (H=0.679), *Local Business Organization* (H=0.704) and *Government Bodies* (H=0.809). *Tourism Industry Organizations*' (H=0.734) network heterogeneity level was higher than that of the *Recreation Operators* (H=0.486) and *Tourism Intermediaries* (H=0.492) sectors. In conclusion, the analysis rejected the hypothesis stated that organization's business sector is not significantly related to its network diversity in cyberspace.

Homophily Effect of Egocentric Network (E-I Index)

Corresponding to the widely observed homophily principle in social networks-similar people tend to interact with each other, another question about the egocentric network structure of identified Web sites would be: Do the Web sites tend to have hyperlink connections with those who are similar (i.e., in the same sector) with them in the identified network? To answer this question, each Web site's network homophily effect was measured by calculating the E-I Index using the following formula (Krackhardt & Stern, 1988).

$$\text{E-I Index} = \frac{E-I}{E+I} \tag{7.5}$$

Where *E* is the number of ties to Web sites that are in different sector from the focal Web site, and *I* is the number of ties to Web sites that are in the same sector with the focal Web site. The value of E-I index value can range from 1 (completely heterophily) to -1 (completely homophily).

The E-I index of each Web site in the inter-hyperlink network was calculated in this study (see appendix I for the results of all the identified Web sites). The sector mean of the E-I index was also calculated in this study (see table 7.9).

It was noticed that the sector of *Accommodation* (EI=0.617), *Attraction* (EI=0.766), *Tourism Intermediaries* (EI=0.671), *Local Business Organizations* (EI=0.668), and *Government Bodies* (EI=0.785) had a E-I index that was lower than the average, which meant that Web sites in these sectors had a higher tendency than the average level of the entire network to have hyperlink connections with Web site in the same sector with them.

7.9 Average Network Homophily E-I Index by Sector

ID	Sector	N. of Web sites	EI Index Mean
1	Accommodation	92	.617
2	Food and Beverage	135	.883
3	Attraction	124	.766
4	Recreation Operators	33	.886
5	Entertainment Services	82	.913
6	Tourism Intermediaries	113	.671
7	Transportation	17	.985
8	Tourism Media	5	1
9	Tourism Organizations	7	.886
10	Business Organizations	13	.668
11	Government Bodies	10	.785
12	Academic Institute	1	1
13	Other services	34	.975
	Total	666	.795
	F (df)		5.883 (12) ***

*. P< 0.05, **. P< 0.01, ***. P< 0.001

Hypotheses Testing

The corresponding hypothesis tested in this section stated:

H9d: Organization's business sector is not significantly related to its network homophily in cyberspace.

Analysis of Variance was run to test if the average network homophily E-I index differed by sector. The results indicated that the average egocentric network homophily index was significantly ($F=5.883$, $df=12$, $p<0.001$) different between different tourism sectors. Sector difference explained about 9.8% of the total variance. The results of post hoc analysis (see appendix J) revealed the network homophily index of *Accommodation* (EI=0.617) and *Tourism Intermediaries* (EI=0.671) sectors were significantly lower than that of *Food and Beverage* (EI=0.88.), *Attraction* (EI=0.766), *Recreation Operators* (EI=0.886), *Entertainment Services* (EI=0.913), *Transportation* (EI=0.985), *Tourism Media* (EI=0.1), and *Other Services* (EI=0.975). It indicated that comparing to the latter sectors, Web site in *Accommodation* and *Tourism Intermediaries* sector had a higher tendency to link Web sites in the same sector. In conclusion, the analysis rejected the hypotheses stated that organization's business sector is not significantly related to its network homophily in cyberspace.

Hyper-interlink Network Structures of Survey Respondents

As the Web sites of the 138 survey respondent's organizations were also included in the hyperlink network of 745 identified tourism-related organizations in Charleston area, this study attempted to explore the possible relationships between tourism-related

organizations' online and offline interorganizaitonal network structures. The study also tried to examine if tourism-related organization's online network structure was related to its organization performance.

Online and Offline Interorganizational Network Structures

The following analyses examined the relationships between the interorganizational network structure and its counterpart in cyberspace. The corresponding null hypotheses stated:

Research Question 10: Are the interorganizational network structure offline related to the hyperlink network structure of tourism organizations?

H10: Organization's interorganizational network diversity offline is not significantly related to its network diversity in cyberspace.

Because no theoretical foundation has been developed for building a causal relationship between organization's offline and online interorganizational network structures, this study used correlation analysis to examine the relationships between these two variables. The correlation results are presented in Table 7.10. Based on Spearman's rho, a significant ($p<0.05$) correlation was found between organization's interorganizational network diversities online and offline. And correlation coefficient between these two variables was 0.218. Therefore, the results of this analysis rejected the null hypothesis that organization's interorganizational network diversity offline is not significantly related to its network diversity in cyberspace.

Table 7.10 Correlations between online and offline ION diversities

Correlations	Diversity Online (n=113)
Network Diversity Offline (n=124)	.218*

*. P< 0.05

Hyperlink Network Structure and Performance

The following analyses examined the relationships between the organization's inter-hyperlink network structures (i.e., indegree and outdegree centrality, network heterogeneity) and their performance (i.e., market and organizational performance). The research question and null hypotheses stated:

Research Question 11: Are the hyperlink network structures of tourism organizations related to their organization performance?

H11a: Organization's network outdegree centrality in cyberspace is not significantly related to its market performance.

H11b: Organization's network outdegree centrality in cyberspace is not significantly related to its organizational performance.

H11c: Organization's network indegree centrality in cyberspace is not significantly related to its market performance.

H11d: Organization's network indegree centrality in cyberspace is not significantly related to its organizational performance.

H11e: Organization's network heterogeneity in cyberspace is not significantly related to its market performance.

H11f: Organization's network heterogeneity in cyberspace is not significantly related to its organizational performance.

Currently there is no theoretical foundation for building a causal relationship between organization's online interorganizational network structures and performance. As results, this study used correlation analysis to examine the relationships between these two variables. The correlation results are presented in Table 7.11. Based on Spearman's rho, only one significant ($p<0.05$) correlation was found between organization's indegree centrality in cyberspace and its market performance, and correlation coefficient between these two variables was 0.193. Therefore, the results of this analysis rejected the null hypothesis that organization's network indegree centrality in cyberspace is not significantly related to its market performance, but failed to reject the remainder of the hypotheses stating that 1) organization's network outdegree centrality in cyberspace is not significantly related to its market performance; 2) Organization's network outdegree centrality in cyberspace is not significantly related to its organizational performance; 3) organization's network indegree centrality in cyberspace is not significantly related to its organizational performance; 4) organization's network heterogeneity in cyberspace is not significantly related to its market performance; and 5)organization's network heterogeneity in cyberspace is not significantly related to its organizational performance.

Table 7.11 Correlations between online network structures and performance

Correlation	Market Performance (n=137)	Org. Performance (n=137)
Outdegree Centrality (n=128)	-.019	.003
Indegree Centrality (n=128)	.193*	.092
Network Diversity (n=125)	.131	.031

*. P< 0.05

Summary

In chapter seven, the results of the empirical analysis based on both the hyperlink network data and the survey data were presented. A final summary of the hypotheses testing in this chapter is presented in table 7.12. Eleven of the null hypotheses were rejected.

Table 7.12 Summary of Hypotheses Testing

Research Questions and Hypotheses			**Rejection**
RQ9	How are the organizational characteristics related to the hyperlink network structure of tourism organizations?		
	H9a	*Organization's business sector is not significantly related to its network indegree centrality in cyberspace*	YES
	H9b	*Organization's business sector is not significantly related to its network outdegree centrality in cyberspace*	YES

Table 7.12 Summary of Hypotheses Testing (Contin.)

Research Questions and Hypotheses			**Rejection**
	H9c	*Organization's business sector is not significantly related to its network diversity in cyberspace*	YES
	H9d	*Organization's business sector is not significantly related to its network homophily in cyberspace.*	YES
RQ10	Are the interorganizational network structure offline related to the hyperlink network structure of tourism organizations?		
	H10	*Organization's interorganizational network diversity offline is not significantly related to its network diversity in cyberspace*	YES
RQ11	Are the hyperlink network structures of tourism organizations related to their organization performance?		
	H11a	*Organization's network outdegree centrality in cyberspace is not significantly related to its market performance.*	NO
	H11b	*Organization's network outdegree centrality in cyberspace is not significantly related to its organizational performance.*	NO
	H11c	*Organization's network indegree centrality in cyberspace is not significantly related to its market performance.*	YES
	H11d	*Organization's network indegree centrality in cyberspace is not significantly related to its organizational performance.*	NO
	H11e	*Organization's network heterogeneity in cyberspace is not significantly related to its market performance.*	NO
	H11f	*Organization's network heterogeneity in cyberspace is not significantly related to its organizational performance.*	NO

CHAPTER EIGHT

CONCLUSIONS AND IMPLICATIONS

This chapter is divided into five sections. In the first section, the proposed hypotheses are reviewed in relation to the research findings. The second and third sections respectively provide the theoretical and practical implications of the study. The limitations of this study are discussed in the fourth section. The final section of the study concerns recommendations for future research.

Review of Research Findings

The purpose of this dissertation was to gain an understanding of the dynamic relationships between the social networks at different subject levels (i.e., interpersonal and interorganizaitonal) and indifferent social contexts (i.e., online and offline), and to examine the possible antecedents and outcomes of these social networks in tourism industry. The analyses of this study consisted of three correlated parts. This study first examined how the boundary-spanning personnel's personality traits influenced their social network structures in a tourism business environment. The interpersonal networks of the boundary-spanning personnel were then examined for their relationships with the business networks of tourism organizations at interorganizational level. Analyses were also run to understand how tourism organization's interorganizational network structures were affected by environmental antecedents (i.e., market turbulence) and how they contributed to tourism organization's market and organizational performance. In the third part of this study, the hyperlink networks among tourism organizations in cyberspace

were explored, along with their relationships with tourism organizations' organizational characteristics (e.g., business sector) and performance.

Personality and Interpersonal Networks

The first series of research questions in the study (RQ1a and RQ1b) attempted to understand how individual's personality traits affect the structures of their social network in business environment? Individual's personality was measured in a Big-Five personality traits construct that includes five major dimensions of personality measure: 1) extraversion, 2) Agreeableness, 3) Conscientiousness, 4) Neuroticism, and 5) Openness. The social network structure was operationalized with two variables: the social network compositional diversity and the social network tie strength. With respondents' socio-demographics and professional experiences controlled, regression analyses found that among the five basic dimensions of personality traits, *Extraversion* had a significantly positive relationship with individual's social network compositional diversity, while individuals' *Agreeableness* affected the tie strength of their social networks in business environment.

Previous studies have explored the significance of extraversion in interpersonal relations, as people high in extraversion are found to be outgoing, active, talkative, and high-spirited. This study confirmed these findings by revealing that extraversion played an important role in the formation of individual's diverse social networks in business environment. In a business environment, the development of interpersonal relationship may go beyond individual's intrinsic motivations, and involves social capital building for business and professional purposes. The building of social capital for business reasons

requires the development of social connections with people having diverse professional backgrounds, which, to some extent, contradicts to the homophily principle in social networking that people tend to interact with other who are similar to them. Under this circumstance, it was reasonable to see that extraversion influenced the diversity of one's business social networks, because people with higher level of extraversion tend to initiate social interaction even with person with different backgrounds. Studies show that individuals who are high in agreeableness see less conflict during their interaction with others, and tend to rate others higher in terms of global social desirability (Graziano, et al. 1996). To some extent, it could be understood that people with higher agreeableness are more likely to trust and treat those they know as friends. This may explain why agreeableness contributed to the strength of their social network ties.

Interorganizational Network

The second research question examined the relationships between the interorganizational structure and organization performance. Tourism organizations' interorganizational network structures were operationalized using two variables: interorganizational network diversity and interorganizaitonal network tie strength. Organization performance was measured from two perspectives. One focused on organization's market performance, and the other concerned the organizational performance. Using regression analysis, tourism organizations' interorganizational network diversity was found to have significant influence on their market performance, but not on their organizational performance. On the other hand, tourism organizations' tie

strength of their interorganizational network was found having no significant relationship with either their market or organizational performance.

Network tie strength has been believed to be related to organization's performance. Rowley et al. (2000) found that strong ties increased performance in the relatively stable industries, while weak ties seems to be more effective in increasing performance for organizations in more dynamic industries. As Brass et al. (2004) summarized, weak ties that facilitate information collection are more valuable when there is much information to collect, whereas strong ties are more useful when organizations seek to reduce competitive intensity in stable industry. However, the finding of this analysis did not support these proposed relationship between network tie strength and organization performance.

The debate over strong and weak network ties in organization studies has been related to organization's accessibility to new advantage and non-redundant information, which are believed to be contributing factors to organization performance (e.g., Burt, 2000; Granovettor, 1974). By differentiating information gained from strong tie and weak ties, researchers were actually examining how the varying information sources affect the level of information non-redundancy and its significance to organization performance. Instead of network strength, an organization's abilities to gain non-redundant information were indicated by the compositional diversity of their network ties in this study. This could also explain why tourism organizations' interorganizational network diversity was found to have significant influence on their market performance.

The relationship between perceived market turbulence and tourism organizations' organization performance was examined through research question three. With the organizational characteristics controlled, the regression analyses results suggested that market turbulence has significant but negative effects on tourism organizations' market performance, and had no impact on their organizational performance. The influence of environment on firm performance has been one of the central themes in organization strategy (Poter, 1980). By focusing on the market turbulence as one major factor of organization's environmental uncertainties, the findings of this analysis empirically confirmed the proposed close relationships between environment and performance.

Research question four examined the relationship between perceived market turbulence and tourism organization's interorganizational network structures (i.e., interorganizational network diversity and network tie strength). It was found that perceived market turbulence had a significant but negative effect on tourism organization's interorganizational network diversity, but had no influence on the strength of their business network ties. The results supported the previous predictions of less cooperation in more competitive market situation (Khandwalla, 1981). The negative relationship between market turbulence and interorganizational network diversity could be understood as a result from the market complexity of tourism industry. According to Keats and Hitt (1988), complexity refers to the number and concentration of environmental elements. It was believed that at a high level of environmental complexity, the evolution of cooperation among small firms would be retarded (Dollinger & Golden, 1992). This was because the complex environment, in this case the turbulent market,

increase the information requirement for organization survive, made it difficult for the small players in fragmented tourism industry to identify who the important actors are and what benefits are available to cooperation and networking.

As the relationships between market turbulence and organization performance, and the relationship between market turbulence and interorganizational structures had been tested respectively in research question three and four, research question five extended the investigation by examining whether and how tourism organizations' business network structures mediated the relationship between market turbulence and organization performance. Analysis revealed that the diversity of tourism organizations' interorganizational network partially mediated the effect of market turbulence on market performance. This mediation effect indicated that higher market turbulence not only influenced organization's market performance in a direct way, it also led to the decrease of tourism organization's business network diversity, which had further negative impact on their market performance.

Research question six examined the relationship between the boundary-spanning personnel's social network structures and tourism organization's performance. With performance measured from two angles (i.e., market performance and organizational performance) and interpersonal network structure examined based on network diversity and tie strength, the analyses reached two conclusions. First, it was the boundary-spanning personnel's network diversity, rather than their network tie strength, that influenced tourism organization's market performance. On the other hand, neither the

boundary-spanning personnel's network diversity nor network tie strength had a significant affected tourism organization's organizational performance.

Research question seven asked about whether tourism organization's business networks were socially embedded in their boundary-spanning personnel's interpersonal networks. The network structures at both interpersonal and interorganizational levels were measured by network diversity and network tie strength. The results of a series of regression analysis suggested that both the network diversity and tie strength at interorganzational level were significantly related to their counterparts at interpersonal level. The boundary-spanning personnel's organizational position rank was also included in the analysis to examine for its possible moderating effects. It was found that boundary-spanning personnel's organizational position rank did not moderate the relationship between the interpersonal and interorganizational network structures.

As the relationships between interpersonal network, interorganizational network, and organization performance had been tested respectively in research question two, six and seven, research question eight extended the investigation of the interrelationships among these three variables by examining whether and how tourism organizations' business network structures would mediate the relationship between boundary-spanning personnel's social network and organization performance. Analysis revealed that the effect of interpersonal network diversity on market performance was fully mediated by tourism organizations' interorganizaitonal network diversity.

Interorganizational Network in Cyberspace

The investigation of tourism organization's hyperlink network structure in cyberspace was based on a sample that was different from the survey data sample. The Web sites of 770 tourism organizations in Charleston area were initially collected and 745 Web sites were used for constructing an inter-hyperlink network of Charleston's tourism industry. The Web sites of those survey responding organizations were also included in this hyperlink network, which made it possible for this study to explore the possible relationships between tourism organization's online network structures (e.g., network centrality, heterogeneity, and homophily, etc.) and their offline organizational characteristics (business sector, business network diversity, and organization performance, etc.).

Research question nine asked about whether and how tourism organizations' organizational characteristics were related to their interorganizational network structure in cyberspace. Specifically, this study examined the sector difference in terms of the indegree centrality (i.e., the number of Web sites that has direct hyperlinks to the focual Web site), outdegree centrality (i.e., the number of Web sites that received direct hyperlinks from the focal Web site), network diversity, and network homopily effects of the identified tourism organizations' Web. Results of a series of Analysis of Variance suggested that all the four network measures were significantly different by sectors. The follow-up post hoc analyses further specified the differences between each pair of sectors. For indegree centrality, *Recreation Operators*, *Entertainment Services*, *Tourism Intermediaries,* and *Other Services* were found having lower indegree centrality than the

other sectors did, while the sectors of *Tourism industry organization* and *Government Bodies* had significant higher indegree centrality than the rest sectors had. This finding suggested that tourism industry organizations and government bodies occupied a relatively more popular position in the online information exchange network, probably due to the high credibility of information provided by these two types of organizations. For the measure of network outdegree centrality, the post hoc analysis suggested that T*ourism industry organization, Tourism Media, Local Business Organization, Academic Institutions,* and *Government Bodies* had a significantly higher value than that of the other tourism-related sectors. This result was not of surprise because comparing to other tourism organizations providing certain tourist products or services (e.g., accommodation, food and beverage, or tour services), these organizations specialized in providing information services. In order to play the role as an information broker in the tourism system, they need to establish a large amount of information channels by creating outlinking hyperlinks to other information sources. The analysis of network heterogeneity by sector had further confirmed this finding, as the Web sites in those more product specialized sectors, such as *Food and Beverage, Attraction, Recreation Operators, Entertainment Services, Tourism Intermediaries, Transportation, and Other Services,* were found having less diverse hyperlink connections than those in *Accommodation, Local Business Organization* and *Government Bodies* sectors. And also, *tourism Industry Organizations*' network heterogeneity level was found higher than that of the *Recreation Operators* and *Tourism Intermediaries* sectors. In addition, the post hoc analysis on the sector difference in network homophily effect indicated that Web site in *Accommodation*

and *Tourism Intermediaries* sector had a higher tendency to link Web sites in the same sector than the Web sites in other sectors did. This might suggest that, comparing to other tourism sectors, business operation in the accommodation and tourism intermediaries sectors required a relatively higher level of information exchange and sharing among peers in the same sectors.

This study also attempted to explore the possible connections between tourism organizations' online and offline network structures, as well as the relationships between their online hyperlink network structures and organization performance.

Research question ten asked about how tourism organization's interorganizitonal network and hyperlink network were structurally correlated to each other. Due to the lack of theoretical foundation for building a causal relationship between organizations' online and offline networking behaviors, this study only conducted a correlation analysis on the survey responding organization's interorganizational network diversity and inter-hyperlink network heterogeneity. Results suggested a significant correlation between these two variables. The results indicated the possibility that tourism organization's interorganization networks in cyberspace might be a projection of their business relationships in the real world. Useful business information might be contained in their online interorganizational network structures, and made the hyperlink network a potentially complementary data source for further studies on the networking behaviors in tourism industry.

Research question eleven concerned the relationship between tourism organizations' online network structure and their organization performance. Correlation

analysis was conducted between two performance variables-market and organizational performance-and three hyperlink network structure variables that included outdegree centrality, indegree centrality, and hyperlink network diversity. Results suggested that tourism organization's market performance was significantly correlated with their indegree centrality in the inter-hyperlink network of tourism industry. A high network indegree centrality on the Web to some extent indicated the influence and popularity of one Web site, as there was a large number of Web sites that had created at least one hyperlink to direct the visitor of their Web sites to the focal Web site. Although the correlations between tourism organization's online popularity and their market performance was confirmed, there has no theoretical foundation so far for researchers to specify the direction of the relationship between tourism organization's market performance and their indegree centrality in the inter-hyperlink network of local tourism industry. In other words, it still remained unknown about whether it was tourism organization's good market performance that led to their high centrality on the Web or it was their popularity on the Web contributed to the market performance.

Theoretical Implications

Social network researchers (e.g., Baker, 1994; 2000; Granovetter, 1974) proposed that in order to increase social capital for themselves or their organizations, individual needs to know people who are dissimilar to oneself in terms of personal attributes. By going beyond the traditional predictors (e.g., proximity and similarity) of network relationship, this study contributed to the recently emerged theoretical effort in incorporating psychological perspectives into the social network research. It is important

to recognize that personality traits may have influence on individual's social networking intentions as well as socializing behaviors. When attempting to explore the potential impact of personality on the formation of social networks, the majority of previous studies focused on a number of specialized and narrowly-defined personality characteristics, for example, self-monitoring (e.g., Killduff, 1992; Mehra, et al., 2001), entrepreneurial personality (e.g., Burt, et al., 1998), and social uniqueness (e.g., Killduff, 1992), etc. Only a very limited number of efforts have been made to examine the relationship between personality and individual's social network structures from a more comprehensive perspective of personality construct, such as the Big Five personality dimensions (e.g., Klein, et al., 2004; Vodosek, 2003). This study empirically contributed to the latter academic endeavor by investigating the influences of the five basic dimensions of personality traits on boundary-spanning personnel's social network diversity and social network tie strength in tourism business environment.

When examining personality's influence on individual's social networks, most of the prior studies attempted to connect individual's personality characteristics with their social network formation and social network structural position, such as network centrality, while the relationship between personality and the composition of individual's social networks as well as the strength of social networks seemed to be still under researchers' radar. From the study it is evident that personality traits also predict the diversity of individual's social networks as well as the strength of these network relationships. What is more, previous research has shown that among the five basic dimensions of personality, extraversion tends to be the most influential factor on

individual's structural position (e.g., centrality) in their social networks (e.g., Vodosek, 2003; Wehrli, et al. 2008). However, it was not the full case in this study, as agreeableness was found an influential factor when it came to the network tie strength. The results of this study suggested that, different aspect of one's social networks may be predicted by different dimensions of his/her personality.

The study also contributed to the interorganizaitonal network literature. As suggested by Ma, et al. (2009), with few exceptions, previous studies focus mainly on network structure to address network content or node attribute. Focusing on organization's network diversity, the present study managed to build the connections between network content and network outcomes that the compositional diversity of an interorganizational network significantly and positively accounted for an organization's market performance. This is because diverse network content indicate a higher chance to obtain non-redundant information that helps the organizations to discover business opportunities in a turbulent and uncertain market environment.

Studies show that the personal network relationships of the boundary-spanning personnel are very critical to the formation and structure of interorgtanizational networks (e.g., Selsky, 1998; Zaheer, et al. 1998). Although excessive research has investigated the relationship between interorganizational networks and organization outcomes, the influence of interpersonal network characteristics are little studied even though interpersonal networks are believed to have important effects on organizational behavior and economic outcomes (Ingram & Robert, 2000). By recognizing the significant role of boundary-spanning personnel in interorganizational network relationship, the present

study examined how the interorganizational and interpersonal networks simultaneously affect an organization's network outcomes, which is organization performance in this case. This study provides empirical evidence that the interpersonal and interorganizational networks were not two separate and isolated systems. The fact that interorganizational network diversity fully mediated the effects of interpersonal network diversity on organization's market performance suggests that once the interorganizational network relationship was developed, maintaining an interorganizational network and an interorganizational network that were both diverse in composition will result in inefficient organization outcomes.

As computer and the internet became increasingly important tools for social interaction and information exchange among people and organizations, the Web is becoming a new setting where network relationship form and evolve. Studies show that hyperlink networks among Web sites and social relations in the offline world may be seen co-constructing each other to some extent, so that offline relationships can influence how online relationship are developed and established (Birnie & Horvath, 2002; Hampton & Wellman, 2000). However, most of the relevant research was conducted at individual level, while little effort has been made to examine the network relationship between organizations on the Web. Some initial studies have attempted to explore the structures of interorganizational networks in cyberspace by tracking the hyperlinked among the Web sites, but little research has been done to connect the online network structures to other real-life organizational characteristics, not to mention examining the possible relationship between organization's network structure in online and offline

contexts. This study took the first step in this area and found that organization's market performance was correlated with the hyperlink network indegree centrality of their Web site, and organization's compositional diversity of their real-life interorganizational network was correlated with its counterpart in the inter-hyperlink network on the Web. These findings provided researchers with initial empirical evidences on the interrelationships between organization's networking behaviors in social and technological contexts, and were believed to contribute to the future theoretical development in this area.

Practical Implications

In addition to theoretical contributions, a number of practical implications can be drawn from this study.

The study confirmed the proposed relationships between personality and an individual's social network structures. The results indicated that based on personality, it may be easier for some people than others to form diverse relationships and to promote the strength of these relationships. Therefore, the study suggests that tourism professionals, particularly the tourism organization's boundary-spanning personnel should be fully aware of their personality, in order to manage their social capitals actively. The research findings also have practical implications to the tourism-related business and organizations. As organization's business network relationships usually need to be carried out by their boundary-spanning personnel. An understanding of the relationships between personality and individual's social networking behavior would help organizations by providing insights and suggestions on their human resource strategies

for the boundary-spanning personnels. With different business network needs or at different network relationship development stage, tourism businesses or organizations may need to look for persons with different personality to undertake the corresponding networking tasks. To be more specific, if the organization's current network goal is mainly focused on expending their business network scope and building connections with a variety of tourism organizations, they should look for someone who has an extraverted personality. Whereas if the organization's business network development is at the stage where promoting the quality of business network relationship is the priority, then agreeableness might be the top personality trait the organization should be looking for in their boundary-spanning personnel.

Through revealing the effects of interorganizational network diversity on organization's market performance, this study indicated the importance of expanding network scope for tourism organizations to achieve business success. Tourism is known for its fragmented nature and its high requirement on between sector collaboration for successful tourism product/service delivery. A diverse business network structure may contribute to a wide source of new advantage and non-redundant information source and bring the organization new entrepreneurial opportunities. The research finding also suggested that the sector might be a proper level at which the network's compositional diversity should be measured and assessed, and tourism organizations should develop more connections with other businesses or organizations in a variety of tourism-related sectors.

The confirmation of social embeddedness of interorganzational networks in this study also revealed the important role of boundary-spanning personnel in tourism organizations' business networking and collaborations. The research found that the interpersonal network structure was highly correlated to the interorganizational network structure between tourism organizations. As the network relationships at interorganizational level need to be carried out by person, study finding suggested that tourism organizations should fully recognize the importance of choosing the right person to assume the boundary-spanning position for organization's business networking activities.

The finding of this research also has important practical implications to the destination marketing organizations (DMOs). Destination marketing organizations are gradually transforming into destination marketing and management organizations, which means that their networking responsibilities in the local tourism industry are becoming more and more important. An examination of the complex structures of interorganizational networks within the local tourism industry may assist the DMOs to identify potential structural holes or gaps in the destination networks, and help the DMOs get a better sense of what unique information or services are desired by the local tourism businesses. In this way, the findings are expected to help the DMOs improve the quality of its local tourism information and networking services, and to help them develop a more strategically critical role in the local tourism business networks.

Limitations

This dissertation was a preliminary attempt to gain empirically based in-depth understanding of the antecedents and outcomes of, and the interrelationships between social networks at different subject levels and within different social contexts for the tourism industry. It shed lights on topics that had been the object of little prior research. However, the results of this study should also be considered with caution due to the study limitations.

One of the limitations concerns the generalizability of the study findings. The analyses based on survey data only included the CACVB Travel Council Investors who completed the survey questionnaire. The study marginalized both the CACVB Travel Council investors who did not complete the survey, as well as those tourism organizations who did not join the CACVB Travel Council. Therefore, the study finds are not generalizable to all the tourism-related businesses and organizations in Charleston Area. In addition, as the study was only carried out in Charleson, SC, it is difficult to say that findings of this study, which was based on only one historic and cultural destination, can be generalized to all the different types of destinations across the country.

The measurement of some study items is also a limitation of this study. The market turbulence, organization's market and organizational performance, as well as the diversity and tie strength of organization's business networks were all measured by the perception of the respondents. Although perception measurements have been widely used in similar studies, the subjective nature of these data may raise certain concerns about the informant bias. For example, respondents at different organizational position or in

different organizational functioning roles may have different perceptions on the same matter.

This study examined the structures of both the interpersonal and interorganizaitonal networks by measuring the network diversity and the strength of the network ties. The investigation of network relationships was limited at sector level, and the network structures (e.g., network centrality, network density, etc) of the specific individual or tourism organizations within the networks were not examined. In addition, the network tie strength in this study was examined at an average level, and no sector difference was taken into consideration. As a matter of fact, it was quite possible that for tourism organizations in different sectors, the strength of their network tie to a certain sector might have different meanings to them. For example, a close relationship with the transportation business might have different significance for a hotel, comparing to that for a restaurant. All these possible sector variations in network tie strength as well as their potential influence on organizational characteristics remained unknown by using the average tie strength measurement.

Another limitation of this study involved the data analysis on hyperlink networks. The hyperlink analyses in this study mainly emphasized on the pattern of the hyperlinks, little attention had been given investigating the content of the hyperlinks. As Thelwall (2009:46) suggests, "[a]lthough link analysis seems relatively quick compared to most social science research methods, the results need careful interpretation with the aid of content analyses of links. Links can be an ideal source of up-to-date information and are particularly useful for pilot or large scale studies and when used in conjunction with other

methods (e.g., interviews) or data sources." This preliminary hyperlink network study only explained how the Web sites of tourism organizations in Charleston's tourism industry were connected to each other, but did not extend the exploration of why they were connected to each other.

Future Research

In this study, the interorganizational network relationships among tourism organizations were examined in a very broad way, as the study asked the respondents to report on their collaboration and/or any other type of close working relationship with other businesses and organizations in different tourism sectors. Thus, the study managed to develop a general picture of the interrelationship among tourism organizations, but did not have the opportunity to identify the specific types of network relationships and their organizational consequences. Future research can take a step further by examining a specific type of interorganizational networks among the tourism organizations in a destination, for example, the network of joint programs, conflict, advice, financial exchange or social networks.

This study examined the influence of market turbulence on a tourism organization's business network structure and organization performance. Market turbulence only revealed one specific dimension of the environmental factors that contributed to the network formation and network structural change. Future research can examine the environmental influences on the interoganizational networks in tourism industry from a more broad perspective. For example, environmental uncertainty might be a right angle for a thorough examination of the environmental effects on tourism

organization's networking behaviors. Miller (1993) proposed that environmental uncertainty can be classified into six areas: 1) the uncertainty of government policies, 2) macro-economic uncertainties, 3) the uncertainty of the resources and services used by the organization, 4) the uncertainty of the product market and demand, 5) the uncertainty of competition, and 6) the uncertainty of the technology in the industry. Mill's 6-dimension construct of environmental uncertainty may be used as a comprehensive conceptual framework for future research to gain a better understanding of the environmental influences on the interorganzational networks in tourism industry.

The interpersonal networks of tourism organization's boundary-spanning personnel in a business environment should not be treated as a pure social network among a group of people. It is reasonable to believe that individual's socializing behavior as well as their interpersonal network structure in business settings not only were determined by individual's personal characteristics (e.g., personality traits), but also were affected by their role as the representative of their organizations. Organization's networking needs or networking intention may have a very significant influence on their boundary-spanning personnel's socializing behavior in business-related social occasions. Future research should take into consideration the social networking intentions at organizational level when examining the boundary-spanning personnel's social network in a business environment.

The inter-hyperlink network analysis in this study only focused on the structure of online connections between tourism organizations, but did not examine the nature and content of these relationships. More research will be needed to understand why these

hyperlink connections were created and what information is contained in these online network relationships. Content analysis of the hyperlinks may be a possible way to achieve this goal. By randomly choosing a certain number of Web pages that were hyperlinked from one actor to another within the an inter-hyperlink network and then analyzing the content of each retrieved Web page, it may allows the researchers to better understand the nature of interorganzational network relationship in cyberspace.

This study took an initial step toward understanding the relationship between tourism organizations' online and offline networking behaviors and network structures. This study could only confirm the correlation between them, but was unable to interpret the relationship soundly, due to the lack of theoretical foundations. This would be an opportunity for future research to develop the theoretical base for understanding the interrelationships between the interoganizational networks in different social environments (i.e., online and offline). One possible way to do this is to adopt the grounded theory method and conduct in-depth qualitative studies with the Web Masters and relative managers who are in charge of the operation of tourism organizations' Web sites. By asking them to explain the hyperlink networking behavior of their Web site and how it is related to their daily business operation, it may provide an empirical base for theoretically connecting tourism organization's interoganizational networks in real life and that in cyberspace.

In conclusion, the current investigation was an attempt to build theoretical and conceptual foundations for studying social networks in tourism industry and empirically

establish and clarify the interactions between networks at different subject levels and in different social contexts. This dissertation has hopefully contributed to that end.

APPENDICES

Appendix A

Online Survey Questionnaire

SECTION 1: BACKGROUND INFORMATION

1. How many employees does your organization or its Charleston branch have? _____

2. In what year was your organization or its Charleston branch founded? _____

3. How many years has your organization been a Travel Council investor with the Charleston Area CVB? _____years

SECTION 2: YOU PERSONAL TRAITS

1. Your gender: ❑ Male ❑ Female

2. Your ethnicity ❑ White ❑ None-white

3. What is your age?

❑ Under 20 ❑ 21-29 ❑ 31-39 ❑ 41-49 ❑ 51-59 ❑ 61-69 ❑ 70 or above

4. What is the highest level of education you have completed (Please check one)

   ❑ High school or less ❑ Some college/technical school ❑ College graduate

   ❑ Master degree ❑ Doctoral Degree ❑ Professional Degree

5. What is your relationship with the organization you represent in the CACVB Travel Council?

   ❑ Owner ❑ Higher-level Manager (e.g. CFO, COO)

   ❑ CEO ❑ Department/Division Manager (e.g. Sales, Marketing, PR)

   ❑ General Manager ❑ Board of Directors Member

   ❑ Employee

   ❑ Other *(Please specify)* _____

6. How many years have you been working at your current organization? _____ years

7. How many years have you been working at your current position? _____ years

8. How many years have you been representing your current organization in the CACVB travel council? _____ years

9. How many years have you been working in the current business field (not necessarily in the current organization)? _____ years

10. How many years have you been working in the Charleston area? _____ years

11. In the past 12 months, how many times have you attended the Travel Council Monthly meeting?

_____times

SECTION 3: PERCEIVED ORGANIZATIONAL ENVIRONMENT AND PERFORMANCE

1. Please indicate how accurate each of the following statements are about your organization's business environment?

	Very Inaccurate			Neutral			Very Accurate
The competition in my organization's industry/sector is intense	1	2	3	4	5	6	7
The market demand and customer tastes are difficult to forecast	1	2	3	4	5	6	7
In general, the market share of my primary business sector is stable among the same competitors	1	2	3	4	5	6	7
We cater to many of the same customers as in the past	1	2	3	4	5	6	7
Our business sales varied significantly in the past three years	1	2	3	4	5	6	7
The recent economic downturn significantly affect my business in a negative way	1	2	3	4	5	6	7

2. How would you compare your organization's performance over the past three years to your direct competitors or other organizations providing similar products or services in Charleston Area?

	Much Worse			About the same			Much Better
Quality of products, services, or programs	1	2	3	4	5	6	7
Development of new products, services, or programs	1	2	3	4	5	6	7
Ability to attract essential employees	1	2	3	4	5	6	7
Ability to retain essential employees	1	2	3	4	5	6	7
Satisfaction of customers or clients	1	2	3	4	5	6	7
Relations between management and other employees	1	2	3	4	5	6	7
Relations among employees in general	1	2	3	4	5	6	7
Marketing	1	2	3	4	5	6	7
Growth in sales	1	2	3	4	5	6	7
Profitability	1	2	3	4	5	6	7
Market share	1	2	3	4	5	6	7

SECTION 4: YOUR SOCIAL CAPITAL

1. Do you personally know any people who work at managerial level or own a business in each of the following sectors in Charleston area? If yes, please indicate the levels of your relationships with them.

	Know no body	Know as acquaintance	Know as friend/relative	know both acquaintances and friends
Accommodation (e.g. Hotels, Motels, B&Bs, Inns, Resorts, Estate Rentals, etc.)	1	2	3	4
Food and Beverage (e.g. Restaurants, Bars and Pubs, Catering services, etc.)	1	2	3	4
Cultural Attractions (e.g. Museums, Galleries, Plantations, Historical sites, Events, Festivals, etc.)	1	2	3	4
Natural Attractions (e.g. National/State/Local Parks, Gardens, Coasts and Beaches, etc.)	1	2	3	4
Recreation Operators (e.g. Spectator sports, Golf, Water sports, Sightseeing, Fishing charter, etc.)	1	2	3	4
Entertainment organizations (e.g. Amusement and theme parks, Theater, Marina, Night Clubs, Shopping facilities, Retail, Florist, etc.)	1	2	3	4
Tourism Intermediaries (e.g. Tour Operators, Tour Guides, Meeting planners, Wedding and Event planners, Real estate, etc)	1	2	3	4
Transportation (e.g. Air lines, Car rentals, Motor coaches, Railway, Cruise lines, etc.)	1	2	3	4
Tourism Media (e.g. Newspaper, Magazine, TV Channel, Tourism website, etc.)	1	2	3	4
Tourism Industry Organizations or Associations (CACVB, Hotel & Motel association, Restaurant association, etc.)	1	2	3	4
Local Business Organizations or Associations (e.g. Chamber of commerce, Downtown Market Area Association, etc.)	1	2	3	4
Government bodies (e.g. City Hall, Port authority, National/State governments, other government agencies, etc.)	1	2	3	4
Academic institutions involved in tourism education and research (e.g. University, College)	1	2	3	4
Local Community/Resident Organizations	1	2	3	4

SECTION 5: YOUR ORGANIZATION'S INTERORGANIZATIONAL NETWORK

1. Over the past three years, has your organization been in a collaboration or other close working relationships (in terms of funding, market development, technology, logistics, co-investment, consulting, sponsoring, etc.) with businesses or organizations belonging to each of the following sectors/areas in Charleston area? If yes, please indicate the levels of these relationships.

	Don't have a relation	Only business relation	Strategic collaboration /partnership	Franchising /Surrogating relation
Accommodation (e.g. Hotels, Motels, B&Bs, Inns, Resorts, Estate Rentals, etc.)	1	2	3	4
Food and Beverage (e.g. Restaurants, Bars and Pubs, Catering services, etc.)	1	2	3	4
Cultural Attractions (e.g. Museums, Galleries, Plantations, Historical sites, Events, Festivals, etc.)	1	2	3	4
Natural Attractions (e.g. National/State/Local Parks, Gardens, Coasts and Beaches, etc)	1	2	3	4
Recreation Operators (e.g. Spectator sports, Golf, Water sports, Sightseeing, Fishing charter, etc.)	1	2	3	4
Entertainment organizations (e.g. Amusement and theme parks, Theater, Marina, Night Clubs, Shopping facilities, Retails, Florists, etc)	1	2	3	4
Tourism Intermediaries (e.g. Tour Operators, Tour Guides, Meeting planners, Wedding and Event planners, Real estate, etc)	1	2	3	4
Transportation (e.g. Air lines, Car rentals, Motor coaches, Railway, Cruise lines, etc.)	1	2	3	4
Tourism Media (e.g. Newspaper, Magazine, TV Channel, Tourism website, etc.)	1	2	3	4
Tourism Industry Organizations or Associations (CACVB, Hotel & Motel association, Restaurant association, etc.)	1	2	3	4
Local Business Organizations or Associations (e.g. Chamber of Commerce, Downtown Market Area Association, etc.)	1	2	3	4
Government bodies (e.g. City Hall, Port authority, National/State or other government agencies, etc.)	1	2	3	4
Academic institutions involved in tourism education and research (e.g. University, College)	1	2	3	4
Local Community/Resident Organizations	1	2	3	4

SECTION 6: YOUR PERSONALITY TRAITS

1. Please indicate your level of agreement with the following statements about your personality

I see myself as someone who…	Strongly Disagree			Neutral			Strongly Agree
is reserved	1	2	3	4	5	6	7
is generally trusting	1	2	3	4	5	6	7
tends to be lazy	1	2	3	4	5	6	7
is relaxed, handles stress well	1	2	3	4	5	6	7
has few artistic interests	1	2	3	4	5	6	7
is outgoing, sociable	1	2	3	4	5	6	7
tends to find fault with others	1	2	3	4	5	6	7
does a thorough job	1	2	3	4	5	6	7
gets nervous easily	1	2	3	4	5	6	7
has an active imagination	1	2	3	4	5	6	7
is talkative	1	2	3	4	5	6	7
is considerate and kind to almost everyone	1	2	3	4	5	6	7
can be somewhat careless	1	2	3	4	5	6	7
worries a lot	1	2	3	4	5	6	7
is inventive	1	2	3	4	5	6	7
tends to be quiet	1	2	3	4	5	6	7
is sometimes rude to others	1	2	3	4	5	6	7
tends to be disorganized	1	2	3	4	5	6	7
is emotionally stable, not easily upset	1	2	3	4	5	6	7
is original, comes up with new ideas	1	2	3	4	5	6	7

Appendix B

Pre-Note Email

From: tying@clemson.edu

Subject: Pre-note of the Social Network Study for the CACVB Travel Council Investors
Body: February 9, 2010

Dear [LastName],

A few days from now you will receive an email request to fill out a brief online questionnaire for an important joint research project being conducted by Clemson University and the Charleston Area Convention and Visitor Bureau.

This study concerns the social networks among the tourism-related businesses/organizations and the social capital of professionals in tourism-related industries/sectors in Charleston area.

The results of this study will help the Charleston Area Convention and Visitor Bureau and its travel council understands how to stimulate and foster a better social networking environment for its travel council investors to achieve business success. The general research findings will also be shared with the survey participants for their future social networking strategies at both organizational and personal career level.

I am writing in advance because we have found many people like to know ahead of time that they will be contacted. Thank you for your time and consideration. It's only with the generous help of people like you that our research can be successful.

Sincerely,

William C. Norman Ph.D.
Associate Professor
Department of Parks, Recreation and Tourism Management
275B Lehotsky Hall
Clemson University
Clemson, SC 29634-0735
864.656.2060 (voice)
864.656.2226 (fax)

Appendix C

Initial Email Invitation

From: plawson@explorecharleston.com

Subject: Social Network Study for the CACVB Travel Council Investors
Body: February 17, 2010

Dear [LastName],

In cooperation with Clemson University, the Charleston Area Convention and Visitor Bureau (CACVB) is conducting a study to seek ways to better serve the social networking needs of its travel council investors.

You are invited to participate in this study by filling an online questionnaire about your business networking needs and social networking behavior in the travel council. The findings will help the CACVB understand how to foster a better socializing environment for its travel council investors to achieve business success.

The link below will take you to the questionnaire. It should take less than 15 minutes to complete. Each survey respondent will receive a free report of this study in May 2010, which will include an evaluation of your own capabilities in business networking and the average measures in your industry/sector in Charleston. The report will be conducive to your future social networking strategies for both organizational and personal career development.

Survey link: **https://www.surveymonkey.com/s.aspx**

Please complete the questionnaire as soon as possible. If you wish to receive a paper copy to complete, email Tianyu Ying at tying@clemson.edu with your name and a mailing address.

Thanks for your participation!

Sincerely,

Perrin Lawson
Deputy Director
CHARLESTON AREA CONVENTION & VISITORS BUREAU
423 King Street
Charleston, South Carolina 29403
p: 843.853.8000 f: 843.853.0444

Appendix D

Second Request Email

From: tying@clemson.edu

Subject: Reminder of the Social Network Study for the CACVB Travel Council Investors
Body: Dear [LastName],

Last week, an email was sent from us inviting you to participate in a social network study for the CACVB Travel Council Investors.

If you have already completed the online questionnaire, we thank you and express our sincere appreciation.

If you haven't already completed the questionnaire, please go to the link below as soon as possible, as the questionnaire will be closed in a week.

Here is the link:
https://www.surveymonkey.com/s.aspx

If you wish to receive a paper copy to complete, email Tianyu Ying at tying@clemson.edu with your name and a mailing address.

Thanks for your participation!

Sincerely,

William C. Norman, Ph.D.
Associate Professor
Department of Parks, Recreation and Tourism Management
275B Lehotsky Hall
Clemson University
Clemson, SC 29634-0735
864.656.2060 (voice)
864.656.2226 (fax)

Appendix E

Final Request Email

From: tying@clemson.edu

Subject: Final Reminder of the Social Network Study for CACVB Travel Council Investors Body: Dear [LastName],

This is the final reminder of the social network study for the CACVB Travel Council Investors. The data collection will be closed by the midnight of this Friday, March 5th.

If you have already completed the online questionnaire, we thank you and express our sincere appreciation.

If you haven't already completed the questionnaire, please go to the link below as soon as possible.

Here is the link:
https://www.surveymonkey.com/s.aspx

Thanks for your participation!

Sincerely,

William C. Norman, Ph.D.
Associate Professor
Department of Parks, Recreation and Tourism Management
275B Lehotsky Hall
Clemson University
Clemson, SC 29634-0735
864.656.2060 (voice)
864.656.2226 (fax)

Appendix F

Indegree Centrality Measure and post hoc Comparison between Sectors

	Sector	N	Indg. Cent. Mean	S2j	S3j	S4j	S5j	S6j	S7j	S8j	S9j	S10j	S112j	S12j	S13j
S1i	Accommodation	96	7.29	3.24*	0.68	3.27*	2.73*	4.03*	2.82	-2.38	-10.33*	1.68	-11.41*	-1.71	4.50*
S2i	Food and Beverage	169	4.05		-2.56*	0.02	-0.52	0.78	-0.42	-5.62	-13.58*	-1.57	-14.65*	-4.95	1.26
S3i	Attraction	138	6.61			2.58	2.05	3.34*	2.14	-3.06	-11.02*	0.99	-12.09*	-2.39	3.82*
S4i	Recreation Operators	40	4.03				-0.54	0.76	-0.45	-5.64	-13.60*	-1.59	-14.67*	-4.98	1.24
S5i	Entert. Services	87	4.56					1.3	0.09	-5.1	-13.06*	-1.05	-14.14*	-4.44	1.77
S6i	Tour. Intermediaries	121	3.26						-1.21	-6.40*	-14.36*	-2.35	-15.44*	-5.74	0.47
S7i	Transportation	17	4.47							-5.2	-13.15*	-1.14	-14.23*	-4.53	1.68
S8i	Tourism Media	6	9.67								-7.96	4.05	-9.03*	0.67	6.88*
S9i	Tourism Org.	8	17.63									12.01*	-1.07	8.63	14.84*
S10i	Buz. organizations	13	5.62										-13.08*	-3.38	2.83
S11i	Government Bodies	10	18.70											9.7	15.91*
S12i	Academic Institute	2	9.00												6.21
S13i	Other services	38	2.79												
	Total	745	5.25												

Note: The post hoc comparison between sectors were presented by the mean difference between SNi-SNj (1<N<13)

*. The mean difference is significant at the .05 level.

Appendix G

Outdegree Centrality Measure and post hoc Comparison between Sectors

	Sector	N	Outdgr.. Cent. Mean	S2j	S3j	S4j	S5j	S6j	S7j	S8j	S9j	S10j	S112j	S12j	S13j
S1i	Accommodation	96	6.67	5.73*	3.38	5.67	4.11	0.42	3.49	-16.83*	-77.83*	-20.72*	-11.93	-28.33*	2.61
S2i	Food and Beverage	169	.94		-2.35	-0.06	-1.61	-5.31*	-2.24	-22.56*	-83.56*	-26.44*	-17.66*	-34.06*	-3.11
S3i	Attraction	138	3.29			2.29	0.74	-2.96	0.11	-20.21*	-81.21*	-24.09*	-15.31*	-31.71*	-0.76
S4i	Recreation Operators	40	1				-1.55	-5.25	-2.18	-22.50*	-83.50*	-26.38*	-17.60*	-34.00*	-3.05
S5i	Entert. Services	87	2.55					-3.7	-0.62	-20.95*	-81.95*	-24.83*	-16.05*	-32.45*	-1.5
S6i	Tour. Intermediaries	121	6.25						3.07	-17.25*	-78.25*	-21.14*	-12.35	-28.75*	2.2
S7i	Transportation	17	3.18							-20.32*	-81.32*	-24.21*	-15.42	-31.82*	-0.88
S8i	Tourism Media	6	23.5								-61.00*	-3.88	4.9	-11.5	19.45*
S9i	Tourism Org.	8	84.5									57.12*	65.90*	49.50*	80.45*
S10i	Buz. organizations	13	27.38										8.78	-7.62	23.33*
S11i	Government Bodies	10	18.6											-16.4	14.55*
S12i	Academic Institute	2	35												30.95*
S13i	Other services	38	4.05												
	Total	745	5.25												

Note: The post hoc comparison between sectors were presented by the mean difference between SNi-SNj (1<N<13)

*. The mean difference is significant at the .05 level.

Appendix H

EgoNetwork Compositional Heterogeneity Measure and post hoc Comparison between Sectors

	Sector	N	Heterog. Mean	S2j	S3j	S4j	S5j	S6j	S7j	S8j	S9j	S10j	S112j	S12j
S1i	Accommodation	92	.679	.143*	.138*	.193*	.164*	.187*	.125	-.005	-.055	-.025	-.13	.229*
S2i	Food and Beverage	135	.536		-.005	.05	.02	.044	-.018	-.149	-.198	-.168*	-.273*	.086
S3i	Attraction	124	.541			.055	.026	.049	-.013	-.143	-.193	-.163	-.268*	.091
S4i	Recreation Operators	33	.486				-.029	-.006	-.068	-.198	-.248*	-.218*	-.323*	.036
S5i	Entert. Services	82	.515					.023	-.039	-.169	-.218	-.188*	-.294*	.066
S6i	Tour. Intermediaries	113	.492						-.062	-.192	-.242*	-.211*	-.317*	.042
S7i	Transportation	17	.554							-.130	-.18	-.15	-.255*	.104
S8i	Tourism Media	5	.684								-.049	-.019	-.125	.235
S9i	Tourism Org.	7	.734									.03	-.075	.284*
S10i	Buz. organizations	13	.704										-.105	.254*
S11i	Government Bodies	10	.809											.359*
S12i	Academic Institute	1	.862											
S13i	Other services	34	.450											
	Total	666	.551											

Note: The post hoc comparison between sectors were presented by the mean difference between SNi-SNj (1<N<13)

*. The mean difference is significant at the .05 level.

Appendix I

EgoNetwork Homophily Measure (EI Index) and post hoc Comparison between Sectors

	Sector	N	EI Index Mean	S2j	S3j	S4j	S5j	S6j	S7j	S8j	S9j	S10j	S112j	S12j
S1i	Accommodation	92	.617	-.266*	-.149*	-.27*	-.296*	-.055	-.368*	-.383*	-.269	-.052	-.168	-.359*
S2i	Food and Beverage	135	.883		.117*	-.003	-.030	.212*	-.102	-.117	-.003	.215*	.098	-.093
S3i	Attraction	124	.766			-.12	-.147*	.095*	-.219*	-.234	-.120	.097	-.019	-.21*
S4i	Recreation Operators	33	.886				-.026	.215*	-.098	-.114	.000	.218	.101	-.089
S5i	Entert. Services	82	.913					.241*	-.072	-.087	.027	.244*	.128	-.063
S6i	Tour. Intermediaries	113	.671						-.313*	-.329*	-.215	.003	-.114	-.304*
S7i	Transportation	17	.985							-.015	.099	.316*	.200	.009
S8i	Tourism Media	5	1								.114	.332	.215	.025
S9i	Tourism Org.	7	.886									.218	.101	-.089
S10i	Buz. organizations	13	.668										-.117	-.307*
S11i	Government Bodies	10	.785											-.191
S12i	Academic Institute	1	1											
S13i	Other services	34	.975											
	Total	666	.795											

Note: The post hoc comparison between sectors were presented by the mean difference between SNi-SNj (1<N<13)

*. The mean difference is significant at the .05 level.

REFERENCES

Adamic, L. A., & Adar, E. (2001, May). *You are what you link*. Paper presented to the 10th annual International World Wide Web Conference, Hong Kong.

Aday, D. P. Jr. (1991). Organizational research, structural data and the informant method: problems of reliability. In G. Miller (ed.), *Studies in organizational sociology: Essays in honor of Charles K. Warriner*. Greenwich, CT: JAI Press, 107-122.

Adler, P.S., and Kwon, S.W. (2000). Social capital: the good, the bad, and the ugly. In E. Lesser (Ed.), *Knowledge and social capital: foundations and applications*, 89-115. Boston: Butterworth-Heinemann.

Adobar, H. (1998). What is the role of partner dispositional factors in intrefirm collaboration? Expanding strategic alliance performance models. *Academy of management Annals Meeting*, August, 1998.

Ahuja, G. (2000). Collaboration networks, structural holes, and innovation: A longitudinal study. *Administrative Science Quarterly*, 45: 425–455.

Aldrich, H. (1979). *Organizations and environments*. Englewood Cliffs, NJ: Prentice-Hall.

Aldrich, H., and Herker, D. (1977). Boundary spanning roles and organization structure. *Academy of Management Review*, 2, 217-230.

Alizadeh, Y. (1998). *Small Ethnic Enterprise Networks*. paper presented at the International Council for Small Business (ICSB) Conference, Singapore, June.

Anon. (2003). *Managing for Growth: Enabling Sustainable Success in Canadian SMEs*. http://www.business.queensu.ca/media.

Armstrong, J.S., Overton, T.S., (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14(4), 396-402.

Asendorpf ,. J.B., and Wilpers, S. (1998). Personality effects on social relationships. *Journal of Personality and Social Psychology*, 74: 1531-1544.

Astley, W.G., and Fombrun, C.J. (1983). Collective strategy: social ecology of organizational environments. *Academy of Management Review*, 4(October):576–87

Ateljevic, J., Milne, S., Doorne, S., and Ateljevic, I. (1999). *Tourism Micro-firms in Rural New Zealand Key Issues for the Coming Millennium*. Wellington, New Zealand: Victoria University Tourism Research Group.

Augustyn, M, and Knowles, T. (2000), Performance of tourism partnerships: a focus on York, *Tourism Management*, 21, 341 -351.BarNir, A., and Smith, K. (2002). Interfirm alliance in the small business: the role of social networks. *Journal of Small Business Management*, 40(3), 219-232.

Bae, S., & Choi, J. H. (2000, April). *Cyberlinks between human rights NGOs: A network analysis*. Paper presented to the 58th annual national meeting of the Midwest Political Science Association, Chicago.

Ballantine, J. W., F. W. Cleveland, and C. T. Koeller (1992). Characterizing Profitable and Unprofitable Strategies in Small and Large Businesses. *Journal of Small Business Management* 30(2), 13–24.

Bamford, J. D., B. Gomes-Casseres, and M. S. Robinson (2003). *Mastering Alliance Strategy: A Comprehensive Guide to Design, Management, and Organization*. San Francisco, CA: Jossey-Bass.

BarNir, A., and K. A. Smith. (2002). Interfirm Alliances in the Small Business: The Role of Social Networks, *Journal of Small Business Management* 40(3), 219–232.

Baum, J., Calabrese, T., and Silverman, B. (2000). Don't go it alone: alliance network composition and startups' performance in Canadian biotechnology. *Strategic Management Journal*, 21(3), 267-294.

Benet-Martinez, V. and John, O.P. (1998). Los Cinco Grandes across cultures and ethnic groups: multitrait multimethod analysis of the big five in Spanish and English. *Journal of Personality and Social Psychology*, 75(3), 729-750.

Benet, V. and Waller, N. G. (*1995*). The "Big Seven" model of *personality* description: Evidence for its cross-cultural generality in a Spanish sample. *Journal of Personality and Social Psychology*, *69*, 701-718.

Bhat, S.S. and Milne, S. (2008). Network effects on cooperation in destination website development. Tourism management, 29(6), 1131-1140.

Birnie, S. A., & Horvath, P. (2002). Psychological predictors of Internet social communication. *Journal of Computer-Mediated Communication, 7*(4).

Björk, P. & Virtanen, H. (*2005) What tourism project managers need to know about* co-operation facilitators, Scandinavian Journal of Hospitality and Tourism, 5(3), 212-230.

Björneborn, L. (2001). Small-world linkage and co-linkage. *Proceedings of the 12th ACM Conference on Hypertext and Hypermedia* (pp. 133-134). New York: ACM Press.

Blau, P.M. (1977). *Inequality and heterogeneity*. New York: Free Press.

Blank, U., (1989). *The Community Tourism Imperative: The Necessity, the Opportunities, its Potential*. Venture Publishing: State College.

Blisson, D. and& Rana, BK (2001). *The Role of Entrepreneurial Networks: The Influence of Gender and Ethnicity in British SMEs*, Proceedings of the 46th Conference of the International Council for Small Business, 17-20, Taipei, Taiwan

Block, J. (1995). A contrarian view of the five-factor approach to personality description. *Psychological Bulletin*, 117, 187–215.

Borgatti, S., and Molina, J.L. (2001). What can social network analysis do for management consulting? Available at *www.analytictech.com/mb814/papers/consulting.pdf.*

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.) *Handbook of Theory and Research for the Sociology of Education* (New York, Greenwood), 241-258.

Bourgeois, L.J. and Eisenhardt, K.M. (1988). Strategic decision processes in high velocity environments: four cases in the microcomputer industry. *Management Science.* 34(7), 816-35.

Brass, D., Galaskiewicz, J., Greve, H., and Tsai, W. (2004). Taking stocks of networks and organizations: a multilevel perspective. *Academy of Management Journal*. 47(6), 795-817.

Brown, J.R., and Frazier, G.L. (1978). The application of channel power: its effects and connotations. In *AMA Summer Educators' Conference Proceedings*. Chicago: American Marketing Association. Pp. 266–270.

Brown, J.R., Lusch, R.F., and Smith, L.P. (1991). Conflict and satisfaction in an industrial channel of distribution. *International Journal of Physical Distribution and Logistics Management*, 21 (6), 15–25.

Brüderl, J. and Preisendörfer, P. (1998). Network support and the success of newly founded businesses. *Small Business Economics*, 10: 213–225.

Brunn, S. D., & Dodge, M. (2001). Mapping the 'Worlds' of the world wide web: (Re)Structuring global commerce through hyperlinks. *American Behavioral Scientist, 44*(10), 1717-1739.

Burkhardt, M. E. (1994). Social interaction effects following a technological change: A longitudinal investigation. *Academy of Management Journal*, 37: 869–898.

Burt, R.S. (1992). *Structural holes*. Cambridge, MA: Harvard University Press.

Burt, R. S. (2000). The network structure of social capital. In B. M. Staw & R. I. Sutton (Eds.), *Research in organizational behavior*, vol. 22: 345–431. Greenwich, CT: JAI Press.

Burt, R.S., Jannotta, J.E. and Mahoney, J.T. (1998). Personality correlates of structural holes. *Social Networks*, 20:63-87

Byrne, B.M., (2001). *Structural Equation Modeling with Amos: Basic Concepts, Applications, and Programming*. Lawrence Erlbaum Associates, Inc., Mahwah, NJ.

Calantone, Garcia, and Dröge, (2003). The Effects of Environmental Turbulence on New Product Development Strategy Planning. *Journal of Product Innovation Management*, 2(2), 90-103

Casciaro, T. (1998). Seeing things clearly: Social structure, personality, and accuracy in social network perception. *Social Networks*, 20, 331–351.

Chakravarchy, B. (1997). A new strategy framework for coping with turbulence. *Sloan Management Review*, 38(2), 69-82.

Chaston, I. (2000). Organisational Competence: Does Networking Confer Advantage for High Growth Entrepreneurial Firms? *Journal of Research in Marketing and Entrepreneurship* 2(1), 37–56.

Chen,W.-H. (1999). Manufacturing Strategies of Network-Based Small Business Firms: Observations on the Textile Industry in Taiwan. *Journal of Small Business Management* 37(2), 46–62.

Child, J. and Faulkner, D. (1998). *Strategies of Cooperation: Managing Alliances Networks and Joint Ventures*. Oxford University, New York.

Claro, Danny P. & Gonzalez, Gabriel and Neto, Silvio A. L. (2008). Increasing Salesperson Performance With Social Capital: The Impact of Centrality, Tie Strength and Network Diversity, *Ibmec Working Papers wpe_130, Ibmec Working Paper, Ibmec São Paulo*.

Cobb, M. (1988). *Influence and exchange networks among tourism oriented business in four Michigan communities*. Doctoral Dissertation, Michigan State University, East Lancing.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94:S95-S120.

Copp, C.B., and Ivy, R.L. (2001), Networking trends of small tourism businesses in post-socialist Slovakia, *Journal of Small Business Management*, 39(4), 345-353.

Costa, P. T. Jr. and McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people, J*ournal of Personality and SocialPsychology*, 38, 668-678.

Costa, P. T., Jr., &McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

Costa, P. T. Jr. and McCrae, R. R. (1995). Domains and facets: Hierarchical personality assessment using the Revised NEO Personality Inventory. *Journal of Personality Assessment*, 64, 21-50.

Crosby, L.A., Evans, K.R., and Cowles, D. (1990). Relationship quality in services selling: an interpersonal influence perspective. *Journal of Marketing*, 54 (July), 68–81.

Cross, R.L., Parker, A. and Borgatti, S.P. (2000). A birds-eye view: Using social network analysis to improve knowledge creation and sharing. *Knowledge Directions*. 2(1): 48-61.

Cross, R., and Parker, A. (2004). *The Hidden Power of Social Networks: Understanding How Work Really Gets Done in Organizations*. Boston: Harvard Business Scholl Press, 2004.

Cui, L. (1999). Rating health Web sites using the principles of citation analysis: A bibliometric approach. *Journal of Medical Internet Research, 1*(1), e4.

Currall, S., and T. Judge. (1995). Measuring trust between organizational boundary role persons. *Organizational Behavior Human Decision Processes*, 64 151-170.

Curran, J. and Blackburn, R.A. (2001). *Researching the Small Enterprise.* London: Sage Publications,.

Dacin, M.T., Ventresca, M., and Beal, B.B. (1999). The embeddedness of organizations: debates, dialogue, dialogue & directions. *Journal of Management* 25 (3), 317–356.

Dalecki, M.C., Whitehead, J.C. and Blomquist, G. (1993). Sample non-response bias and aggregate benefits in contingent valuation: an examination of early, late and non-respondents. *Journal of Environmental Management*, 38, 133-143.

Dess, G.D. and Beard, D.W. (1984). Dimension of organizational task environments. *Administrative Science Quarterly* 29(1), 52-73.

Dess, G., Ireland, R.D., and Hitt, M.A. (1988). Industry effects and strategic management research. Paper presented at the meetings of the Academy of Management, Anaheim, CA.

Dess, G., and Roinson, R. (1984). Measuring organizational performance in the absence of objective measures: the case of the privately held firm and conglomerate business units. *Strategic management Journal*, 5: 265-273.

Delaney, J., and Huselid, M. (1996). The impact of human resource management practices on perceptions of organizational performance. *Academy of Management Journal*, 39(4), 949-969.

Dickson, K. E., and A. Hadjimanolis (1998). Innovation and Networking amongst Small Manufacturing Firms in Cyprus. *International Journal of Entrepreneurial Behavior and Research* 4(1), 5–17.

Dickson P.H., and Weaver, K.M. (1997). Environmental determinants and individual-level moderators of alliance use. *Academy of Management Journal*. 2(April), 404 –25.

Dollinger, M.J., and Golden, P.A. (1992). Interorganizational and collective strategies in small firms: environmental effects and performance. *Journal of Management*, 18: 695-715.

Dillman, D. (2000). *Mail and Internet surveys*. New York: john Wiley & Sons, Inc.

DiMaggio, P.J. (1998). Interest and agency in institutional theory. In: Zucker LG, editor. *Institutional patterns and organizations*. p. 3 –21.Cambridge, MA: Ballinger.

Dougherty, T.W., Cheung, Y., and Florea, L. (2008). The role of personality in employee developmental networks. *Journal of Managerial Psychology*. 23(6), 653-669.

Dredge, D. (2006). Policy networks and the local organization of tourism. *Tourism Management*, 27, 269-280.

Durland, M. and Fredericks, K. (2005) An Introduction to Social Network Analysis. In Durland, M. and Fredericks, K. (eds.) *Social Network Analysis in Program Evaluation. New Direction of Evaluation, no.107.* Hoboken, NJ: John Wiley & Sons, Inc.

Dwyer, R.F. and Gassenheimer, J.B. (1992). Relational roles and triangle dramas: effects on power play and sentiments in industrial channels," *Marketing Letters*, 3 (2), 187–200.

Dyer, J. H., and Singh, H. (1998). The relational view: cooperative strategy and sources of interorganisational competitive advantage. *The Academy of Management Review*, 23(4), 660–679.

Emery, F.E. and Trist, E.L. (1965). The causal texture of organizational environments. *Human Relations*, 18, 21-32.

Emery, F.E. and Trist, E.L. (1973). *Towards a social ecology*. London: Plenum.

Emirbayer, M. (1997). Manifesto for Relational Sociology. *American Journal of Sociology* 103:281-317.

Frank, K.A., and Fahrbach, K. (1999). Organizational Culture as a Complex System: Balance and Information in Models of Influence and Selection. Special issue of Organization Science on Chaos and Complexity in Organization. *Organization Science*, 10(3): 253-277

Freeman, E.R. (1984). *Strategic management: a stakeholder approach*. Massachusetts: Pitman.

Freeman, J.H. (1978). The unit of analysis in organizational research. In M.W. Meyer and Associates (eds), *Environments and rganizatins*. San Francisc: Jossey-Bass, 335-351.

Freeman, L. C. (1977) A set of measures of centrality based on betweenness. Sociometry 40, 35-41.

Freeman, L. C. (1979). Centrality in social networks: Conceptual clarification. Social Networks, 1(3), 215-239.

Garton, L., Haythornthwaite, C., & Wellman, B. (1997). Studying online social networks. *Journal of Computer-Mediated Communication, 3*(1).

Gassenheimer, J B., Calantone,R.J. Schmitz, J.M., and Robicheaux, R.A. (1994). Models of channel maintenance: what is the weaker party to do? *Journal of Business Research*, 30 (3), 225–236.

Geyskens, I., and Steenkamp, J.E.M. (2000). Economic and social satisfaction: measurement and relevance to marketing channel relationships. *Journal of Retailing*, 76(1), 11-32.

Geyskens, I.,Steenkamp, J.E.M., and Kumar, N. (1999). A Meta-Analysis of satisfaction in marketing channel relationships. *Journal of Marketing Research*, 36 (May), 223–238.

Glazer, R. and Weiss, A.M. (1993). Marketing in turbulent environments: decision processes and the time-sensitivity of information. *Journal of Marketing Research* 30(4), 509-521.

Goldberg, L . R . (1981) . Language and individual differences: the search for universals in personality lexicons. In *Review of Personality and Social Psychology*, ed. L.Wheeler, 2, 141-65. Beverly Hills, CA: Sage

Goldberg, L.R. (1992). The development of markers of the Big-Five facto structure. *Psychological Assessment*, 4, 26-42.

Gosling, S., Rentfrow, P.G., and Swann, W.B. (2003). A very brief measure of the Big-Five personality domains . *Journal of Research in Personality*, 37(6), 504-528.

Grabher, G. (1993). Rediscovering the social in the economics of interfirm relations. In G. Grabher (ed.), The embedded firm: on the socioeconomics of industrial networks. London: Routledge, 88-104.

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*. 78, 1360-1380.

Granovetter, M. (1985). Economic action and social structure: the problem of embeddedness. *American Journal of Sociology*, 91, 481-510.

Gray, B. (1989). *Collaborating: finding common ground for multiparty problems*. San Francisco: Jossey Bass

Gretzel, U., *D.* Fesenmaier, S. Formica, *and J.* O'Leary *(*2006*).* Searching for the Future*:* Challenges Faced by Destination Marketing Organizations. *Journal of Travel Research,* 45(2), 116-126.

Groves, R.M. (1989). *Survey errors and survey costs*. New York: Wiley.

Gulati, R., and Gargiulo, M. (1999). Where do interorganizational networks come from? *American Journal of Sociology*, 104: 1439–1493.

Gulati R, Westphal J. The dark side of embeddedness: an examination of the influence of direct and indirect board interlocks and CEO/Board relationships on interfirm alliances. Academy of Management Annual Meeting, August, 1998.

Gunn, C.A. (1994). *Tourism planning: basics, concepts, cases* (3rd ed.). Washington, DC: Taylor & Francis.

Gunn, C.A., and Var, T. (2002). *Tourism planning* (4th ed). New York: Routledge.

Hair, J.F., Anderson, R.E., Tatham, R.L., Black, W.C., (1998). *Multivariate Data Analysis*, 5th Edition, Prentice Hall, Upper Saddle River.

Halavais, A. (2000). National borders on the World Wide Web. *New Media & Society*, *2*(1), 7-28.

Halinen, A., and Törnroos, J. (1998). The role of embeddedness in the evolution of business networks. *Scandinavian Journal of Management*, 14(3), 187-205.

Halme, M. (2001). Learning for sustainable development in tourism networks. *Business Strategy and the Environment*, 10, 100-14.

Hampton, K. N., & Wellman, B. (2000). Examining community in the digital neighborhood: Early results from Canada's wired suburb. In Ishida, T. & Isbister, K. (Eds.), *Digital cities: Technologies, experiences, and future perspectives*. (pp. 194-208). Heidelberg, Germany: Springer-Verlag.

Hannan, M., and Freeman, J. (1977).The population ecology of organizations. *American Journal of Sociology*. 82,929– 64.

Hanneman, R. (2001). *Introduction to social networks*. Online book free on the web at www.analytictech.com/netwroks.pdf.

Hansen, M. T. (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, 44: 82–111.

Harland, C. M., Lamming, R. C., Zheng, J. & Johnsen, T. E. (2001). A taxonomy of supply networks. *Journal of Supply Chain Management*, 37: 20-27.

Harrill, R., and Potts, T. (2003). Tourism planning in historic districts: attitude toward tourism development in Charleston. *Journal of the American Planning Association*, 69 (3), 233-244.

Hart, P., and Estrin, D. (1991). Inter-organizational networks, computer integration, and shifts in interdependence: the case of the semiconductor industry. *ACM Transcations on Information Systems*, 9(4), 370-398.

Haythornthwaite, C. (1996). Social network analysis: An approach and technique for the study of information exchange. *Library and Information Science Research*, 18, 323-342.

Helft & Stone, (2009). Board Ties at Apple and Google Are Scrutinized. *The New York Times*, May 4, 2009.

Henzinger, M.R. (2001). Hyperlink analysis for the web. *IEEE Internet Computing*, 5(1). 45-50.

Higgins, M.C. and Kram, K.E. (2001). Reconceptualizing mentoring at work: a developmental network perspective. *Academy of Management Review*, 26, 264-88.

Huxham, C. (1996). Collaboration and collaborative advantage. In C. Huxham (Ed.), *Creating collaborative advantage.* Thousand Oaks, CA: Sage.

Hwang, J., Jones, P., Westering, J. V., and Warr, D. (2002). Best Practice in Partnerships & Networks for SMEs in The UK Hospitality, Tourism and Leisure Industry. *Profit Through Productivity Report No. 1*, University of Surrey, Guilford.

Jackson, M. H. (1997). Assessing the structure of communication on the world wide web. *Journal of Computer-Mediated Communication, 3*(1).

Jang, K.L., McCrae, R.R., Angleitner, A., Rieman, R., and Liversley, W.J. (1998). Heritability of facet-level traits in a cross-cultural twin sample: support for a hierarchical model of personality. *Journal of Personality and Social Psychology*, 74: 1556-1565.

Jaworski, B. J & Kohli, A. K. (1993). Market Orientation: Antecedents and Consequences. *Journal of Marketing*, Vol. 57, 53-70.

Jehn, K. & Shah, P.P. (1997). Interpersonal relationships and task performance: An examination of mediating processes in friendship and acquaintance groups. *Journal of Personality and Social Psychology*, 72, 775-790.

Jøgensen, H. and Vintergaard, C. (2006). Connecting Company Strategy and Network Identity. In S. Klein and A.Poulymenakou., (Eds.) *Managing Dynamic Networks*, Berlin Heidelberg : Springer. Pp. 69-91.

John, O.P. (1990). The “Big Five” factor taxonomy: dimensions of personality in the natural language and in questionnaires. In L.A. Pervin (ed.), *Handbook of personality: theory and research*, New York: Guilford Press. Pp. 66-100.

John, O.P., Donahue, E.M., and Kentle, R.L. (1991). *The "Big Five" inventory-versions 4a ans 54*. Berkeley: University of California, Berkeley, Institute of Personality and Social Research.

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin, & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp.102–138). New York: Guilford Press.

Johnson, S., and Wolfe, R. (1995). Personality as a predictor of college performance. *Educational and Psychological Measurement*, 55, 177-185.

Johnston, W. J., Peters, L. D. and Gassenheimer, J. (2006). Questions about network dynamics: characteristics, structures and interactions. *Journal of Business Research*, 59: 945-954.

Kalleberg, A.L., Knoke, D., Marsden, P.V. and Spaeth, J.L. (1994). The national organizations study: an introduction and overview. *American Behavioral Scientist*, 37, 860-871.

Keats, B.W. and Hitt, , M.A. (1988). Linkages among environmental dimensions and macro-organizational characteristics: a causal modeling approach. *Academy of management Journal*, 31, 570-598.

Kettinger, W., and Grover, V. (1997). The use of computer-mediated communication in an interorganizational context. *Decision Sciences*, 28(3), 513-555.

Kilduff, M. (1992). The friendship network as a decision-making resource: dispositional moderators of social influences on organizational choice. *Journal of Personality and Social Psychology*, 62, 168-80.

Kilduff, M., and Tsai, W. (2003). *Social Networks and Organizations*. Thousand Oaks, CA: Sage.

Klein, G. A. *(*1989*).* Strategies of decision making. *Military Review*, 56-64.

Klein, K. J., Lim, B.C., Saltz, J. L., and Mayer, D. M. (2004). How do they get there? An examination of the antecedents of centrality in team networks. *Academy of Management Journal*, 47, 952–963.

Kleinberg, J., (1999). Authoritative sources in a hyperlinked environment. *Journal of the ACM*, *46*(5), 604-632.

Knoke, D., Marsden, P.V., and Kalleberg, A.L. (2002). Survey research methods. In J. Baum (ed.), *The blackwell of ompanion to organizations*. Malden, MA: Blackwell, 781-804.

Knoke, D., Reynolds, P.D., Marsden, P.V., Miller, B., and Kaufman, N. (1991). *The reliability of organizational measures from multiple-informant reports*. Manuscript, Department of Sociology, University of Minnesota, Twin Cities.

Knoke, D., and Yang, S. (2008). *Social Network Analysis* (2nd ed.). LA: Sage.

Krebs, V. (2000). Working in the connected world book network. *IHRIM (International Association for Human Resource Information Management) Journal*, *4*(1), 87-90.

Lane, C. & Bachmann, R. (1998). *Trust within and between organizations: Conceptual issues and empirical applications*. Oxford: Oxford University Press.

Larson A. (1992). Network dyads in entrepreneurial settings: a study of the governance of exchange relationships. *Administrative Science Quarterly*. 1(March), 76– 104.

Larson, R. R. (1996). Bibliometrics of the World Wide Web: an exploratory analysis of the intellectual structure of cyberspace. *Proceedings of the AISS 59th annual meeting*.

Lee, C., K. Lee, and J. M. Pennings (2001). Internal Capabilities, External Networks, and Performance: A Study on Technology-Based Ventures. *Strategic Management Journal* 22(6–7), 615–640.

Leiper, N. (1990). *Tourism system: an interdisciplinary perspective*. Palmerston North, new Zealand: Massey University.

Lin, N. (2001a). Building a Network Theory of Social Capital. In N. Lin, K. Cook and R. S. Burt (eds.) *Social Capital - Theory and Research.* New York: Aldine de Gruyter.

Lin, N. (2001b). *Social Capital - A Theory of Social Structure and Action.* Cambridge, Cambridge University Press.

Lewis, M.C., and Lambert, D.M. (1991). A model of channel member performance, dependence, and satisfaction. *Journal of Retailing*, 67(2), 205–225.

Lynch, P.A. (2000). Networking in homestay sector. *The Service Industry Journal*, 20, 3, 95-116.

Ma, X., Yao, X., and Xi, Y. (2009). How do interorganizational and interpersonal networks affect a firm's strategic adaptive capability in a transition economy? *Journal of Business Research*, 62, 1087-1095.

Malone, T.W., Yates, J., and Benjamin, R. (1987). Electronic markets and electronic hierarchies: effects of information technology on market structure and corporate strategies. *Communications of the ACM*, 30(6), 487-497.

Marin, A., and Hampton, K. (2007). Simplifying the personal network name generator: alternatives to traditional multiple and single name generators. *Field Methods*, 19(2), 163-193.

Marin, A., and Wellman, B. (2009). Social Network Analysis: An Introduction. in Peter Carrington and John Scott (eds.). *Handbook of Social Network Analysis*. Thousand Oaks:Sage.

Marsden, P. V. (1981). Introducing influence processes into a system of collective decisions. *American Journal of Sociology* 86, 1203-1235.

Marsden, P. (1987). Core discussion network of Americans. *American Sociological Review*, 52, 122-131.

Marsden, p. (2005). Recent developments in social network analysis. In P. Carrington, J. Scott., and S. Wasseman (eds.). *Models and methods in social network analysis*. New York: Cambridge University Press. Pp. 8-30.

Marsden, P.V., and Laumann, E.O. (1984). Mathematical ideas in social structural analysis. *Journal of Mathematical Sociology*. 10, 271-294.

Medina-Munoz, D., and Garcia-Falcon, J. M. (2000). Successful relationships between hotels and agencies. *Annals of Tourism Research*, 27(3), 737-762.

Mehra, A., Kilduff, M., and Brass, D. J. (2001). The social networks of high and low self-monitors: Implications for workplace performance. *Administrative Science Quarterly*, 46, 121–146.

McAdams, D. P. (1992). The five-factor model in personality: A critical appraisal. *Journal of Personality*, 60, 329-361

McAllister, L., and Fischer. C.S. (1978). A procedure for surveying personal networks. *Sociological Methods and Research*, 7(2), 131-148.

McCrae, R.R., and Costa, P.T. (1990). *Personality in adulthood*. New York: Guiford Press.

McCrae, R. R. and John, O. P. (1992). An introduction to the five-factor model and its applications, *Journal of Personality*, 60, 175-215.

McGrath, J. E. (1964*). Social Psychology*: A Brief Introduction. New York: Holt, Rinehart & Winston.

McPherson, J. M., Smith-Lovin, L., and Cook, J. M. (2001). Birds of a feather: Homophily in social networks. In J. Hagan & K. S. Cook (Eds.), *Annual review of sociology*, vol. 27: 415–444. Palo Alto, CA: Annual Reviews.

Meyer, J.W, and Rowan, B. (1977). Institutional organizations: formal structure as myth and ceremony. *American Journal of Sociology*. 2(September):340– 63.

Middleton, V.T. (1988). *Marketing in travel and tourism.* Oxford, England: Butterworth-Heinemann.

Mill, R.C. and Morrison, A.M. (2002). *The tourism system: an introductory text* (4th ed.), Dubuque, Iowa: Kendall Hunt.

Miller, D. and Friesen, P.H. Innovation in conservative and entrepreneurial firms. *Strategic Management Journal* 3 (1): 1–25 (1982).

Money, R.B. (2000). Social networks and referrals in international organization buying of travel services: the role of culture and location. *International Journal of Hospitality and Tourism Administration,* 1(1), 27-48.

Morrison, A.M. (2002). *Hospitality and travel marketing* (3rd ed.). Albany, New York: Dlmar Thomson Learning.

Murto-Koivisto, E., Routamaa, V. and Vesalainen, J. (1996). The prerequisites for different types of successful interfirm cooperation in the SME-sector. *Journal of Enterprising Culture*, 4 (2): 109-122.

Neuberg, S.L., and Newsome, J.T. (1993). Personal need for structure: individual differences in the desire for simple structure. *Journal of Personality and Social Psychology,* 65, 113-131.

Oliver, C. (1990). Determinants of interorganizational relationships: integration and future directions. *Academy of Management Review*, 15, 241-265.

Page, S.J., Forer, P., and Lawton, G.R. (1999). Small business development and tourism: terra incognita? *Tourism Management*, 20, 435-459

Park, H.W. (2002). What is hyperlink network analysis: new method for the study of social structure on the web. Connections, 25(1): 49-61.

Park, H. W., Barnett, G. A. & Nam, I. Y. (2002). Hyperlink-affiliation network structure of top Web sites: Examining affiliates with hyperlink in Korea. *Journal of the American Society for Information Science and Technology, 53*(7), 592-601.

Park, K. (1997). *Understanding the social network structure of Korean Older adults' tourist behavior: a preliminary step in tourism development*. Doctoral dissertation, The Pennsylvania State University.

Paulson, S.K. (1985). A paradigm for the analysis of interorganizational networks. *Social Networks*, 7(2), 105-126.

Pavlovich, K. (2003). The evolution and transformation of a tourism destination network: the Waitomo Caves, New Zealand. *Tourism Management*, 24, 203-216.

Pearce, D. (1992). *Tourist organizations*. London: Longman.

Perry, M. (1999). *Small firm and network economies*. London: Routledge.

Perry-Smith, J. E., and Shalley, C. E. (2003). The social side of creativity: A static and dynamic social network perspective. *Academy of Management Review*, 28:89–106.

Pesämaa, O. (2007). *Development of relationships in interorganizational networks: studies in the tourism and construction industries*. Doctoral Thesis, Luleå University of Technology.

Phillips, L.W., 1981. Assessing measurement error in key informant reports: amethodological note on organizational analysis in marketing. *Journal of Marketing Research*, 18(4), 395-415.

Pfeffer, J, and Salancik, G.R. (1978). *The external control of organizations*. New York: Harper and Row.

Pforr, C. (2002). The makers and the shakers of tourism policy in the northern territory of Australia: a policy network analysis of actors and their relational constellations, *Journal of Hospitality and Tourism Management.* 9(2), 134–151.

Polodny, J. M., and Baron, J. N. (1997). Relationships and resources: Social networks and mobility in the workplace. *American Sociological Review,* 62: 673–693.

Powell, T.C. (1992). Organizational alignment as competitive advantage. *Strategic Management Journal*, 13, 119-134.

Powell, W.W., Koput, K., and Smith-Doerr, L. (1996). Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, 41: 116–145

Prideaux, B., and Cooper, C. (2002). Marketing and destination growth: a symbiotic relationship or simple coincidence? *Journal of Vacation Marketing,* 9 (1), 35–52.

Rammstedt, B and John, O.P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, 41, 203–212.

Reid, E. (2003). Using web link analysis to detect and analyze hidden communities. In: D. Vriens, (ed.) *Information and communication technology for competitive intelligence* (pp. 57-84), Hilliard, Ohio: Ideal Group Inc.

Reagans, R., E. Zuckerman, and B. McEvily. (2003) *How to make the team? Social networks vs. demogra- phy as criteria for designing effective projects*. Working paper, Columbia University Graduate School of Business.

Ritchie J.R., and Counch, G.I. (2003). *The competitive destination: a sustainable tourism perspective*. Wallingford, Oxon, UK: CABI Publishers.

Rowley, T. J., Baum, J. A. C., Shipilov, A. V., Greve, H. R., and Rao, H.(2004). Competing in groups. *Managerial and Decision Economics*, 25.

Rowley, T. J., Behrens, D., and Krackhardt, D. (2000). Redundant governance structures: An analysis of structural and relational embeddedness in the steel and semiconductor industries. *Strategic Management Journal*, 21: 369–386

Scott, J. (2000). *Social network analysis: a handbook* (2nd ed). Thousand Oaks, CA: Sage

Scott, N., Baggio, R., and Cooper, C. (2008). *Network analysis and tourism: from theory to practice*. Clevedon: Channel View.

Selsky J. Digging deeper: reframing cultural mismatches in strategic partnerships. Academy of Management Annual Meeting, August, 1998.

Shan, W. (1990). An Empirical Analysis of Organizational Strategies by Entrepreneurial High-Technology Firms. *Strategic Management Journal* 11(2), 129–139.

Sheehan, L., and Ritchie, B. (2005). Destination stakeholders: Exploring identity and salience. *Annals of Tourism Research*, 32(3), 771-734.

Sheehan, L., Ritchie, J.R., and Hudson, S. (2007). The Destination Promotion Triad: Understanding Asymmetric Stakeholder Interdependencies Among the City, Hotels, and DMO. *Journal of Travel Research* 46, 64-74.

Snyder, M. (1974). Self-monitoring of expressive behavior. *Journal of Personality and Social Psychology*, 30, 526-37.

Steinfield, C., Kraut, R., and Plumer, A. (1995). The impact of interorganizational networks on buyer-seller relationshisps. Journal of Computer-Mediated Communication, 1(3).

Stokowiski, P.A. (1990). Extending the social groups model: social network analysis in recreation research. *Leisure Science*, 12, 251-263.

Street, C.T., and Cameron, A. (2007). External relationships and the small business: a review of small business alliance and network research. *Journal of Small Business Management*, 45(2), 239-266.

Sulej, J. C., V. Stewart, and W. Keogh (2001). Taking Risk in Joint Ventures: Whose Throw of the Dice? *Strategic Change*, 10(5), 285–295.

Tabachnick, B. G., and Fidell, L. S. (2007). *Using Multivariate Statistics , 5th ed.* Boston: Allyn and Bacon.

Tan, B., Foo, S., and Hui, S.C. (2002). Web information monitoring for competitive intelligence. *Cybernetics and Systems*, 33(3), 225-251.

Telfer, DJ. (2001). Strategic alliances along the Niagara Wine Route. *Tourism Management*, 22, 21-30.

Thelwall, M. (2001a). Extracting macroscopic information from Web links. *Journal of the American Society for Information Science and Technology*, *52* (13), 1157-1168.

Thelwall, M. (2001b). Exploring the link structure of the Web with network diagrams. *Journal of Information Science 27*(6) 393-402.

Thelwall, M. (2002). The top 100 linked pages on UK university Web sites: High inlink counts are not usually directly associated with quality scholarly content. *Journal of Information Science, 28*(6), 485-493.

Thelwall, M. (2009). *Introduction to Webometrics: Quantitative Web Research for the Social Sciences.* San Rafael, CA: Morgan & Claypool.

Timur, S. (2005). *A network perspective of stakeholder relationships in the context of sustainable urban tourism*, Doctoral Dissertation, University of Calgary.

Tinsley, R. and Lynch, P. (2001). Small tourism business networks and destination development. *Hospitality Management*, 20, 367-378

Trist, E.L. (1983). Referent organizations and the development of interorganizational domains. *Human Relation*, 3(March):247– 68.

Todman, L. D., & McLaughlin, J. M. (1999). *The insider's guide to greater Charleston, SC*. Helena, MT: Falcon Publishing.

Tushman, M. (1977). Special boundary roles in the innovation process. *Administrative Science Quarterly*, 21, 624-645.

Tushman, M.L. and Thomas, J.T. (1981). Characteristics and external orientation of boundary spanning individuals. *The Academy of Management Journal*, 24(1), 83-98.

Tyler, D., and Dinan, C. (2001). The role of interested groups in Engliand's emerging tourism policy network. *Current Issues in Tourism*, 4(2-4), 210-252.

Uzzi, B. (1996). The sources and consequences of embeddedness for the economic performance of organizations: The network effect. *American Sociological Review*, 61: 674–698.

Uzzi, B. (1997).Social structure and competition in interfirm networks: the paradox of embeddedness. *Administration Science Quarterly* . 1(March):35– 67.

Uzzi, B. (1999). Embeddedness in the making of financial capital: how social relations and network benefit firms seeking capital. *American Sociological Review* 64 (4), 481–505.

Vaughan, L. (2004). Web hyperlinks reflect business performance: a study of US and Chinese IT companies. *Canadian Journal of Information and Library Sciense*, 28(1), 17-31.

Vaugh, L., Gao, Y., and Kipp, M. (2006). Why are hyperlinks to business Websites created? A content analysis. *Scientometric*s, 67(2), 291-300.

Vaughan, L., and Wu, G. (2004). Links to commercial web sites as a source of business information. *Scientometrics*, 60 (3), 487-496.

Venkatraman, N., and Ramanujam, V. (1987). Measurement of business economic performance: an examination of method convergence. *Journal of Management*, 13: 109-122.

Vodosek, M. (2003). *Personality and the formation of social networks*. Paper presented at the. Annual Meeting of the American Sociological Association, Atlanta.

Wasserman, S., and Faust, K. (1994). *Social network analysis: methods and applications*. New York: Cambridge.

Watson, D., Clark, L.A., and Harkness, A.R. (1994). Structures of personality and their relevance to psychopathology. *Journal of Abnormal Psychology*, 103, 18-31.

Wehrli and Zürich. (2008). Personality on Social Network Sites: An Application of the Five Factor Model, *ETH Zurich SociologyWorking Paper*. Available at http://repec.ethz.ch/ets/papers/wehrli_studivz_big5.pdf

Wellman, B. (2001). Computer networks as social networks. *Science, 293*(14). 2031-2034.

Whetten, D.A. (1981). Interorganizational relations: a review of the field. *Journal of Higher Education*. 1, 1 – 27.

Widiger, T., and Trull, T. (1992*)*. Personality and psychopathology: An application of the five-factor model. *Journal of Personality*, 60, 363-393

Williams, T (2005). Cooperation by design: structure and cooperation in interorganizational networks. *Journal of Business Research*, 58, 223-231.

Williamson O.E. (1985). *The Economic Institutions of Capitalism*. New York: Free Press.

Zaheer A, Loftstrom S, Varghese G. Adjuvant or catalyst? Unpacking interorganizational and interpersonal trust in biotechnology alliances. Academy of Management Annual Meeting, August, 1998.

Zammuto, R.F., and Krakower, J.Y. (1991). Quantitative and qualitative studies of organizational culture. Research in Organizational behavior, 5, 83-114.

Zukin,S., and DiMaggio,P.J. (1990). *Structures of Capital: The Social Organization of the Economy.* New York: Cambridge University Press.